

A NEW ARCHAEOLOGICAL HISTORY OF AZTEC RUINS, NEW MEXICO:

EXCAVATING THE ARCHIVES

by

L. ERIN BAXTER

B.A., Trinity University, 1998

M.S., University of Colorado, Boulder, 2010

A thesis submitted to the
Faculty of the Graduate School of the
University of Colorado in partial fulfillment
of the requirement for the degree of
Doctor of Philosophy
Department of Anthropology

2016

This thesis entitled:
A New Archaeological History of Aztec Ruins: Excavating the Archives
By: Erin Leigh Baxter
has been approved for the Department of Anthropology

Stephen H. Lekson

Douglas B. Bamforth

Catherine M. Cameron

Elsbeth R.M. Dusingberre

Scott G. Ortman

Date

The final copy of this thesis has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

Abstract

Baxter, L. Erin (PhD, Anthropology, University of Colorado, Boulder)
A New Archaeological History of Aztec Ruins: Excavating the Archives
Thesis Directed by Professor Stephen H. Lekson

My research focuses on the Chacoan to post Chaco Phenomenon (c. AD 900-1300) in the US Southwest. I am particularly interested in how political and social complexity was manifested at Chaco's successor, Aztec Ruins (c. AD 1100-1300). My dissertation draws on previously under-inspected museum collections—including historical documents and photographs of early archaeological work compiled a century ago by Colorado archaeologist Earl Morris. My intents are twofold. First, I have worked to develop new databases, hybridized maps and forensic photographic analysis in order to compile disparate data sources and pull them together in archaeologically meaningful ways; and secondly, I am using multi-modal analysis, drawn from the field of education, to propose a new framework of prehistoric narrative that allows Aztec's inhabitants to tell their own stories within an historical framework constructed by multiple lines of archaeological evidence. I hope to contribute to the field of Anthropology in two ways: 1) To develop new methods to mine disparate kinds of data for evidence that moves the field toward richer and more applicable theory building; and 2) To apply these historical data to broader anthropological questions related to Southwest prehistory. I am especially interested in posing and testing methods to reconstruct ancient demography, assess factors that led to site abandonment, collect and contribute to *in situ* perishable artifact studies of objects that have been lost, and add to the extant literature on health and violence. Drawing upon, and occasionally challenging, previously held models concerning Chacoan political organization, my dissertation research contends that the final century of Aztec's occupation was fraught with episodic strife and inconsiderate burial, veneration of elite members, a period of Chaco revivalism, and a final catastrophic end.

Acknowledgements

For assistance, thoughts, support, academic aid, intellectual guidance and patient answers to endless questions: (first and foremost) Steve Lekson, Doug Bamforth, Cathy Cameron, Beth Dusingberre, and Scott Ortman.

I hope simple is best. *also* for assistance, thoughts, support, intellectual guidance, services rendered and other sentiments, thank you to: Payson Sheets, Gerardo Gutierrez, Art Joyce, Joan Mathien, Char Miller, Alida Metcalf, Mary Van Buren, Laurie Webster, Karen Adams, Annibal Rodriguez, Colin Woodward, Barbara Mathe, Thomas Baione, Kristen Mable, Lori Pendleton Thomas, , David Hurst Thomas, Christina Cain, Jen Shannon, Aron Adams, Joel Gamache, Steve Matt, Gary Brown, Lori Reed, Tracy Bodnar, Russ Bodnar, Donna Glowacki, Corey Robinson, Alison Robinson, Lauren Bialek, Cyresa Bloom, Ruth Van Dyke, Bruce Bradley, Sarah Herr, Julie Solometo, Carrie Heitman, Steve Plog, Steve LeBlanc, George Jacobs, Valerie McBride, Karen Lund, Lisa Morris, Richard Bender, Kelly Swarts, Michael Blake, Chuck Adams, Dennis Van Gerven, Paul Sandberg, Grant Oberholzer, Barbara Mills, Bill Lipe, Deb Martin, Mark Varien, Susan Ryan, Grant Coffey, Florence Lister, Frank Lister and everyone at Crow Canyon Archaeological Center. Thank you all!

Thanks also to the generous support from the Lister Fellowship, Colorado Archaeological Society, Colorado Council of Professional Archaeologists, CU-Boulder College of Arts and Sciences, the CU Graduate School, the CU Museum of Natural History, the National Park Service, and the Alice Hamilton Scholarship Fund.

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Chapter 1: Context

Introduction

Aztec Ruins is the name given to a complex of buildings occupied by Ancestral Puebloans from approximately 1100-1280. The site core sprawls across 27 acres on the west bank of the Animas River in northwest New Mexico and consists of at least four great houses, three multi-walled (tri- and quad-) structures, multiple roads and road segments, a dozen small house-sites, substantial midden deposits, earthen berms, and at least three great kivas. Aztec is in some manner tied to Chaco Canyon — its antecedent and possible progenitor in political, social and economic organization as well as originator of much of its material expression. Chaco Canyon has been argued elsewhere (Lekson 1999, 2009, 2015; Wilcox 1999; Van Dyke 2007a) to have been the probable capital (880-1125) of a large region centered on the San Juan Basin (**Fig 1.1**), where it became a regional polity with influence seen well into Northern San Juan, Kayenta and Cibola regions. Upon Chaco's collapse, it seems that at least some of its regional authority (in both political and religious terms), and perhaps its inhabitants, transferred to Aztec. Archaeologists are divided as to the significance and extent of Aztec's role in the post-Chacoan world — and indeed are not in agreement concerning how Aztec's relationship to Chaco should be categorized (Morris 1928; Cameron 2005; Brown et al. 2008; Reed 2008). Was it initially (in the 12th century) a colony or emulator, and later (13th century) an abandoned village occupied and remodeled by a different

people? Or was it continuously occupied by a group whose material culture changed expression?

These are simplified summaries of complex issues which specialists have struggled with for decades and which have great significance for the late prehistoric Southwest. But the key point is that, in order to re-examine these long-standing questions about Aztec Ruins, new data are needed. The research presented here uses mixed methods to gather and assess *new* data from Aztec Ruins without conducting new excavations at the site. My approach to the issues outlined above involve 1) gathering multiple modes (i.e., *forms*) of data on Aztec including photographs, published works, letters, sketch maps, oral histories, and field notebooks, 2) assessing and coding these data with multimodal analytic techniques (inductive, grounded theory, interpretive) and 3) transposing these data onto spatial/temporal maps, forensic photographic interpretation, demographic tables and room-specific histories.

The data considered in this project are gleaned from the notes and records left by Earl Morris. They include 1200 never-before-published excavation photographs taken between 1916 and 1922, unpublished field notes, early maps drawn by Aztec's first explorers, and oral histories from local residents. These data, combined with published resources, allow for detailed reconstructions from micro to macro scales: from individual rooms to buildings, to site complexes, and to the regional level. This analysis

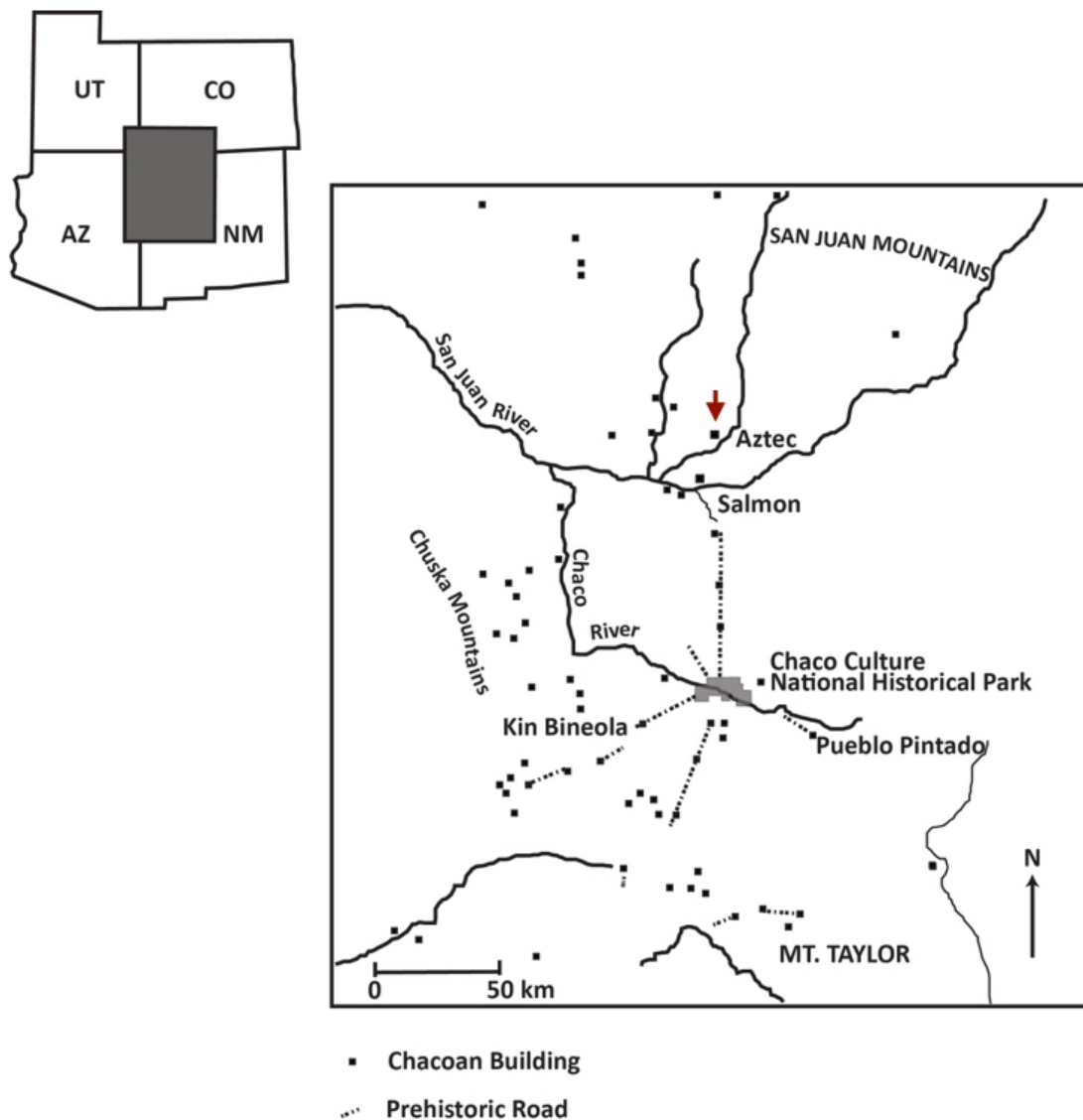


Figure 1: Map of Aztec Ruins in relation to Chaco Canyon

allows a re-assessment of building construction sequences, architectural forms, artifact deposition, and room use. It provides the data necessary for re-analysis of burials, the site's abandonment, and — in some areas — the stages of its subsequent re-occupation to final abandonment. Of the data classes available, the most informative category consists of photographs with their rich visual record of architecture, artifacts and the

process of excavation. Morris's field notes and published descriptions also contribute to our understanding of the methodologies he employed and the discoveries he unearthed.

This dissertation makes four primary contributions.

1. It develops a series of techniques for mining early field notes and excavation records to glean new information about sites excavated long ago. Using Aztec Ruins as a case study, this research demonstrates the rich potential of old but unstudied (or understudied) excavation photos, notes, correspondence, and crated finds. When these records are combined with architectural and geographic analysis, the potential for new discovery is extraordinary. A combination of new maps, multimodal theory, and forensic examination of old records can transform our understanding of the site and provide entirely new information.
2. To best illustrate this method, three chapters (Chapter 4: *Kiva D*, Chapter 5: *Burials* and Chapter 6: *Room 139*), will demonstrate how the methods outlined might be applied to portions of the site that are in a position at least partially to answer larger-scale questions about the history of 13th century Aztec. This is an application of *microhistory* — or an attempt to answer big questions from small spaces. In this case of this dissertation research, *microhistories* will be applied to two spaces within Aztec West — a room and a kiva — (in Chapter 4 and 5 respectively) to assess how and if a focused analysis of a finite space might be applied to broader questions related to Aztec West's 13th century collapse.
3. This research reconsiders the position of Aztec in the Chacoan and post-Chacoan world. Many theories have been advanced concerning the function of Aztec and its relation to other sites in the Ancestral Puebloan Southwest; with the benefit of new information gleaned from old records, this dissertation situates Aztec more certainly within its landscape and offers a clearer idea of its changing role in the Southwest, particularly during the 13th century when its occupational history came to an end.
4. For purposes of the research in this dissertation, analysis will be applied to the portion of the data available appropriate to answer a few of the enduring questions at Aztec — what factors led to its collapse, and how are those expressed in the archaeological record and recorded in legacy data? This research requires clear data collection methods, systematic scanning and organization, and a new method must be applied to the array of information available. The end-goal is to outline a model for continued work and to facilitate future research and collaboration with other Aztec and Chaco scholars. Consequently, this project seeks to create and strengthen networks that will increase the overall research value of data. These findings are variously relevant to professional archaeologists, the interested public, and

descendent communities. The new interpretations derived from this legacy data may impact the National Park Service's interpretation of Aztec Ruins (92,000 annual visitors; 250,000 website hits), and the digitized data from this dissertation will be made available on the Chaco Research Archive, and at some future date at American Museum of Natural History and University of Colorado Museum of Natural History websites and research collections.

Terms

There are a number of terms, acronyms, dates, individuals and jargon associated with this research. Throughout, I consider Aztec's chronology to parallel the Chaco Canyon chronology outlined by Lekson (2006:7) and will use the Pecos classification terminology to indicate periods.

Table 1.1: Chronology

Pecos Classification	Chaco Phase	Aztec Pattern	Dates	Associated Ceramics
Late Pueblo III	Mesa Verde	Decline	1200-1280	Mesa Verde B/w, indented corrugated (rock and sherd temper)
Pueblo III	McElmo	Re-occupation by Mesa Verde groups	1140-1200	McElmo, indented corrugated (rock, sherd, sand temper)
Early Pueblo III	Late Bonito	Aztec West Florescence Chaco occupation	1090-1140	Chaco-McElmo, Gallup B/w, indented corrugated (sand temper)
Late Pueblo II	Classic Bonito	Aztec Founded c. 1090	1040-1110	Gallup B/w, indented corrugated (sand and trachyte temper)
Early Pueblo II	Early Bonito	--	900-1040	Red Mesa B/w, narrow neckbanded, neck corrugated (sand temper)
Late Pueblo I Early Pueblo II	Early Bonito	--	850-925	Kiatuthlanna, Red Mesa B/w, Lino Gray and Kana's neckbanded

Room numbers associated with Aztec excavations often contain errors, and at times it is difficult to determine which room is indicated by what number, but whenever not expressly noted otherwise in this dissertation, Earl Morris's original numbering system will be used. This system was largely adopted by the National Park Service and is shown in their 1956 basemap (**Fig 1.2**).

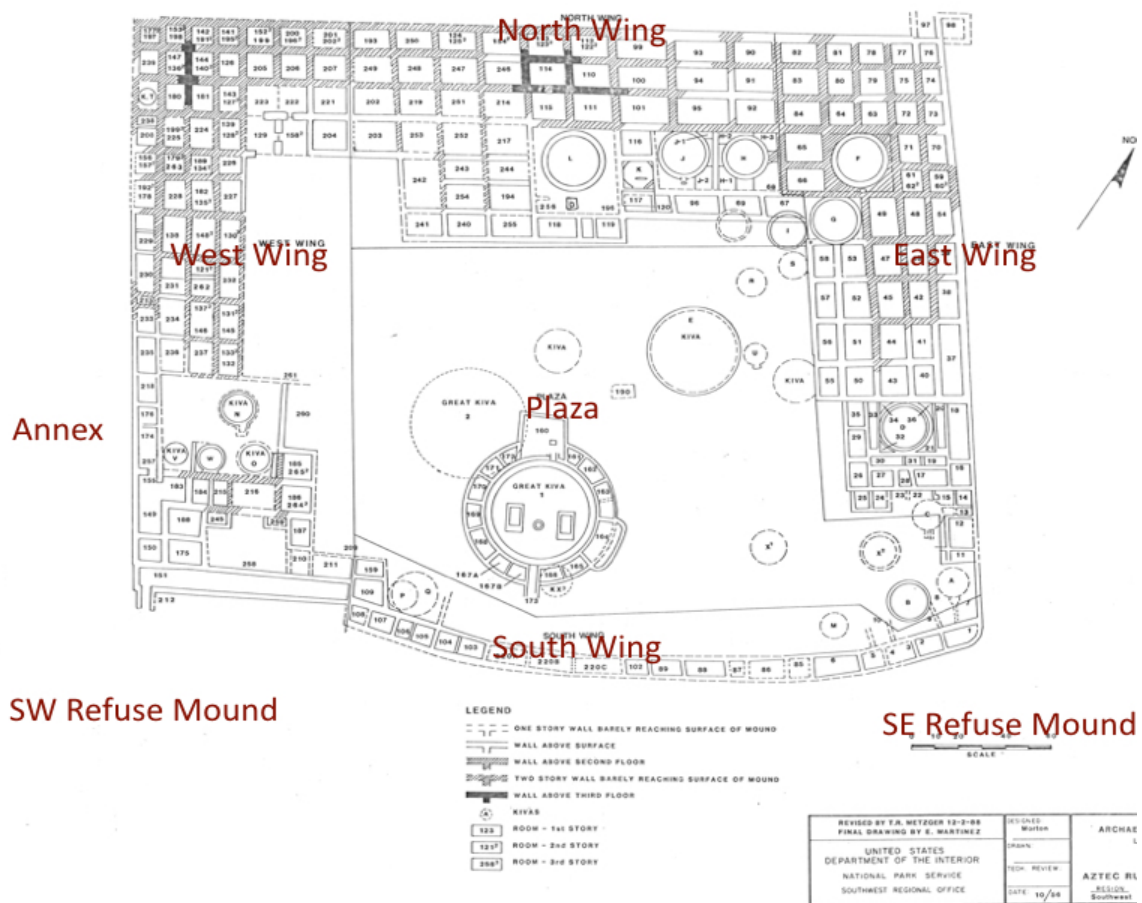


Fig 1.2: National Park Service map (1956) of Aztec West, with portions of the building as described by Morris generally noted.

The vast majority of Morris's work concentrated on the discrete Chacoan great house known as Aztec West. Morris worked in several other structures in the Aztec Ruins complex as well, followed by research and excavation undertaken by the National Park Service as well. The names Morris gave the various structures are Aztec West, Aztec East, Aztec North, Earl Morris Ruin, the Refuse Mounds and the Annex. This last consists of seven discrete room blocks of approximately 35 rooms and 16 kivas immediately adjacent to the west of Aztec West. Early texts attribute different names to some of portions, but eventually they became standardized and it is these that are referred to in the following chapters (**Fig 1.2**).

During his time at Aztec, Morris regularly wrote letters to his supervisors at the American Museum of Natural History. They included Nels Nelson (only in 1915/1916), Clark Wissler and Pliny Goddard. These three men oversaw Morris's budget, instructed him in his excavation procedures, advised on issues and asked for regular updates as the work progressed. These names will be mentioned often, and without further introduction or explanation throughout.

Morris often referred to particular subdivisions of Aztec West during his excavations. The 'C' — shaped structure had tripartite “wings” that he dubbed the East, West, and North Wings. These are, at best, general area associations. Morris also often divided the site into quadrants — northwest, northeast, southwest, southeast — which are also only generalized guides of where work took place. For example, Morris spent much of 1916 in excavation of the East Wing in the Southeast quadrant.

The primary source of data for this project derives from photographs taken by Morris. A more detailed explanation will be given in Chapter 2, but source citations that begin with “AZRU_000”, “CUMNH_000”, “AMNH_000” or a simple number alone, refer to scanned photographs or documents from archive sources. The first moniker gives the institution where the items are found, followed by an ‘_’ underscore; the secondary numbers are correlated with a log of their location. In turn, these are tied to metadata for each of the digitized scans. The meanings of the prefixes are listed below.

AMNH	American Museum of Natural History
AZRU	Aztec Ruins National Monument
CRA	Chaco Research Archive
CUMNH	University of Colorado (CU) Museum of Natural History
NPS	National Park Service
WACC	Western Archaeological Conservation Center

I. Introducing Aztec

The complex of Aztec Ruins (c. 1100-1280) (hereafter “Aztec”) on the Animas River in northern New Mexico was first documented in the late 19th century (Morgan 1879) (**Fig 1.3**). Aztec West was the focus of an extensive excavation project from 1916-1922 and in 1924 (Morris 1919, 1924a 1924b, 1928) and has subsequently been subject to a number of investigations into its pottery, burials, and perishable artifacts, as well as regional survey, environmental assessments, architectural studies, and tree-ring analyses. Several synthetic reports and numerous specialist articles have been published, while much is also to be found in less-widely circulated grey literature and

government reports (Lister and Lister 1987; Sheik 1988; Reed et al. 2008). Included among the unpublished documents and photographs are previously unstudied data on burial types, specialized artifacts and architectural details, the interpretation of which may change or bolster our understanding of Aztec's past.

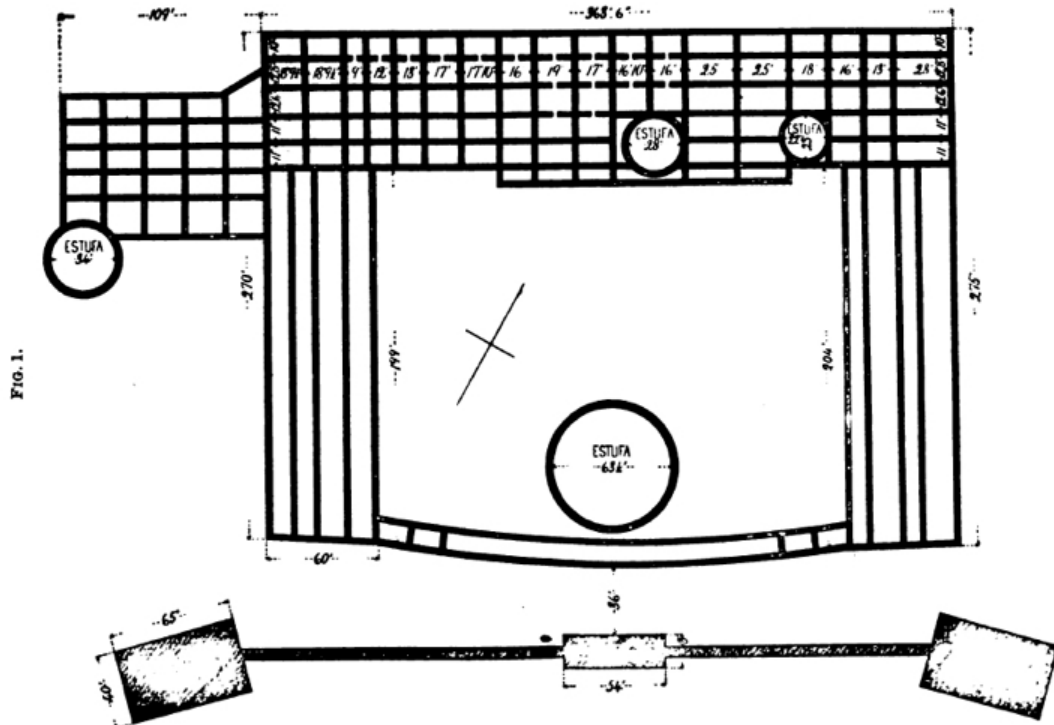


Fig 1.3: Morgan's Map of Aztec West, 1878

II. Situating Aztec

Aztec is actually a misnomer at multiple levels. Early explorers, and later Anglo settlers of the town of Aztec, attributed construction of the great houses and other buildings of the Aztec complex to the Aztecs of Old Mexico — a misconception that in turn contributed to 100+ years of misinterpretation of the site. This may have had its

origins in a popular account in Prescott's *History of the Conquest of New Mexico* which assessed Northern New Mexico as *Aztlan* — the original home of the Aztec (Prescott 1843). To consider Aztec a single site is also misleading: rather, it consists of some 90 sites found within the 317.8 acre area managed by the National Park Service under the name *Aztec Ruins National Monument*. Indeed, the Aztecan “halo” extends well beyond this area (primarily to the bluff above the Main Ruins Group). There are historical accounts of dozens more sites in the immediate area, though most have now been severely impacted by the Animas River to the east and recent development to the west and south.

The Monument was created by President Warren G. Harding on January 24, 1923, and has been recognized on the National Register of Historic Places (1966), and as a UNESCO World Heritage Site (1987). The site is located in San Juan County, NM, just outside the town also named Aztec, and consists (in NPS terms) of the *Main Ruins Group* (West Ruin, East Ruin, Earl Morris Ruin) and the *Aztec North Mesa Archaeological District* (NPS General Management Plan 2010:29) which includes 21 PII/PIII habitation sites (approximately 1100-1280), one field house, three refuse scatters, 22 shrines, 21 road or road segments, landscape features, and earthworks (Stein and McKenna 1988:12) (**Fig 1.4**). Despite this extensive array of site information, the research presented in this dissertation focuses primarily on *West Ruin* or *Aztec West*, terms that are used synonymously in the literature to denote the westernmost great house found in the Park.

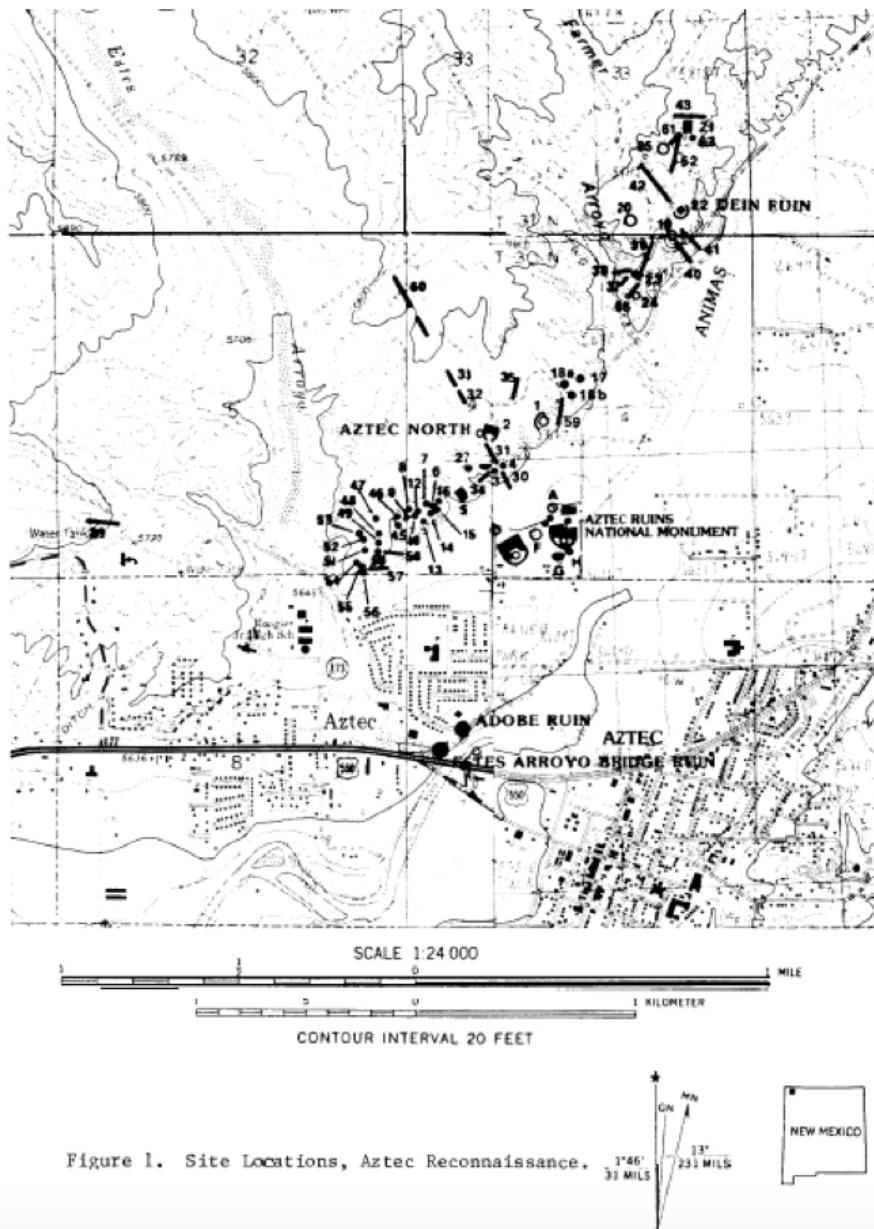


Figure 1. Site Locations, Aztec Reconnaissance.

Fig 1.4. Map of sites located during survey by Stein and McKenna (1988) on the bluff overlooking the Aztec Complex.

Geographical Location, Plant and Animal Life

The Aztec Ruins are approximately one mile east of the Animas River, 45 miles below its source in Colorado. Near the site, the river flows through a valley approximately two miles wide and is bordered alternately by alluvial bottoms and

boulder-strewn bluffs (Richert 1964:vii). Geographically, the site is located in Section 4 T. 30 N. R 1 W. at a longitude of 108° degrees West, latitude 36° 50' North. Its elevation is 5642 feet above sea level (USGS).

The Animas River valley in the area of Aztec has naturally rich soils that are suitable for farming and are home to cottonwood, willow, and a variety of deciduous trees and bushes. To the north of the Ruins group is a rugged hilly zone that gradually rises to the La Plata mountain range. It is made up of rock-strewn hills with poor soils that provide a geographical boundary separating the Animas from adjacent drainages. In general, the local vegetation outside the river's proximity could be classified as Upper Sonoran, with a variety of sagebush (*Artemisia tridentate*), black greasewood (*sarcobatus vermiculatus*), fourwing saltbush (*Atriplex canescens*), rabbit brush (*Chrysothamnus sp.*), prickly pear (*Opuntia sp.*), Rocky Mountain bee plant (*Cleome serrulata*), datil yucca (*Yucca baccata*), one-seed juniper (*juniperus monosperma*), piñon (*Pinus edulis*), blue grama (*Bouteloua gracilis*), prairie junegrass (*Koeleria cristata*), and alkali sacaton (*sporobolu airoides*) growing throughout the valley. Animal life found in the region today includes deer, elk, jackrabbits, cottontails, porcupines, skunks, rock squirrels, gophers, rats, mice, grosbeaks, finches, warblers, robins, wrens, sparrows, phoebes, flycatchers, bluebirds, woodpeckers, blackbirds, magpies, crows, jays, hawks, owls, and ducks (NPS n.d.).

The current National Park designated monument was part of a homestead that was granted in 1889, although it had been cultivated by Anglo farmers since 1882. Corn was planted first, followed by alfalfa and then rotated continuously until the

establishment of the Park (Hastings n.d.:2). After 1937, Chinese elm and poplar trees were planted, and mixed grass seed was spread in the area south of the Ruin. The remainder of the acreage was left to its own devices, except for occasional weeding. Riparian woodland is classified as “encroaching” on the northeast corner of the monument (Christensen 1979). A study by Hastings (1940) examined native vegetation that returned to the area after restrictive cultivation ceased and found that there were indications of traditional cultivated native crops (corns and squash) immediately south of West Ruin.

Geology

Three of the four great houses at Aztec are found immediately atop the first terrace above the Animas river bottom. The terraces of the Animas valley are derived from late Pleistocene glacial moraines 20 m — 140 m above the river level. These terraces are most often covered in loess composed of coarse rounded gravels and sands that have been eroded by the Animas so that only remnants remain. This alluvium is underlain by Paleocene Nacimiento formation composed of gray, olive green and purple shales which grade into sandstone near the top. Sandstone in the deposit is water-bearing, gray-white to yellow in color with variable hardness (Christenson 1979:7). Alluvial fill from the Animas River with Pleistocene sand has been deposited as gravel terraces approximately 200 m north of the Main Ruins Group. Much of the Animas valley is made up of Nacimiento shale formation overlaid by alluvium consisting of clay, silt, sand and gravel some 23 meters thick. Nearby gravels along the riverbed, some of

which were incorporated into Aztec architecture, are made up of metamorphic debris washed in from the San Juan Mountains in Colorado. The alluvium is capped by a yellowish-brown loamy soil less than 2 m thick that includes both stratified and silty clay loams. The alluvial fill is in flux, and erosion from gullying which began around 1880 has undercut both the riverbank and a prehistoric canal system (Christensen 1979:6, see also Howe 1947). Nacimiento shale is characterized as a poor aquifer, which accounts for no local spring locations at Aztec and explains the nearby population's reliance upon permanent water sources like the Animas in addition to run-off from localized rains (Christenson 1979:1).

Climate

Park records indicate that mean temperatures in and around Aztec average in the upper 90s to low 40s (F) in the summer. The winter sees temperatures from well below zero (-26 is the record) to around 30 degrees, with significant ice storms. The average day sees a change of 35 degrees. Annual precipitation averages 10 inches (25 cm) with only 3 inches (7.5 cm) falling from June to September. The region is characterized as *semi-arid*, and farming (even today) only takes place on floodplains or with the help of irrigation systems (Richert 1964:vii)

Paleo-environmental Reconstruction

The environmental history of the San Juan region — particularly in the area just northwest of Aztec — has been thoroughly documented. The Pueblo III period (when the chief occupation of Aztec occurred) was plagued by unfavorable climatic conditions and a series of major droughts. The 1100s was a century characterized by degraded floodplains and decreased climatic variability that directly and negatively affected agricultural productivity (Van West and Dean 2000:37). By the early 1200s, it is likely that an even more severe drought impacted the area and exacerbated already low water tables, entrenchment of the Animas, and agricultural productivity (Berry 1982). The inhabitants of Aztec itself would have been buffered by their proximity to a perennial river, but they would likely have had to modify their catchments to account for Animas down-cutting, lower and more sluggish water levels, and less rainfall. All was not always grim however. Between the droughts of c. 1140-1180 and 1270-1300 were periods of relatively favorable conditions. These included average to slightly below average rainfall and cooler temperatures (Kohler et al. 2005; Cordell et al 2007).

A number of studies undertaken in the last half-century have focused on more specific reconstructions of prehistoric and anthropogenic environmental change at Aztec. These include assessments of agricultural impacts on the region, reconstruction of local fauna populations, and studies of human coprolites that supply direct data on local resources available to the local populace (Cummings and Moutoux 1997; Hastings n.d.; Reinhard 2008).

Test units placed into agricultural fields immediately south of the Ruins indicate

trace amounts of *zea mays* pollen identified 1 m below modern ground surface. Also found was evidence of reduction in *Pinus* pollens and increase in *Cheno-am*, indicating that trees were cleared and weedy annuals were present as a result of significant ground disturbance (Cummings 1997:4). Strontium isotope analysis of maize also indicates both local and extra-local sources of corn. These included sources in the McElmo Dome (95 km distant) and Mesa Verde (60 km), in addition to the immediate area (Benson et al. 2009:395). Benson and others postulate significant trade in corn between Aztec and communities to the northwest that shared similar late Pleistocene loess soils (Benson et al. 2009:403).

Analysis of a number of rooms in West Ruin partially excavated in recent years for stabilization (Room 202 and 221) indicates that prehistoric fauna collected by Aztecs was dominated by cottontails and jackrabbits (42%), with smaller amounts of turkey (4.4%) and a mixture of ungulates that included deer, pronghorns, and bighorn sheep (2%) (the remainder of the assemblage was unlikely dietary). Durand found that in general, lagomorph ratios at Aztec are comparable to other Chacoan outliers such as Guadalupe or Salmon but atypical for in-canyon sites such as Pueblo Alto (Durand 2005:1-2).

Finally, analysis of a group of Aztec human coprolites from three individuals (West Ruin, Room 225) indicated a broad-spectrum diet that included indications of the consumption of fresh cultigens (corn, beans, and squash), beeweed, ricegrass, amaranth, goosefoot, sunflower, cactus, and onion, in addition to stored or processed foods in the form of cakes (maize mixed with saltbrush), seeds and dried fruits, as well

as one individual's consumption of unidentified prepared meat (Cummings et al. 2009:30-31).

Demography

The demographic data associated with Aztec's occupants are difficult to ascertain. Unlike human remains from Chaco, a significant portion of the human remains from Aztec were lost before thorough analyses could be done. The remains of 76 individuals from Aztec West, the Annex, associated refuse mounds, from small sites in several extramural in immediate surrounds (less than 3/8 mile) of Aztec West can still be found at AMNH (Ryan Harrod, of the University of Alaska, personal communication 2014), but the majority were returned to Aztec for repatriation in 2005 before significant analysis was conducted (NAGPRA Notification FR-Doc 05-10802). Morris was not systematic with his records, despite his 1924a publication on burials (as discussed in Chapter 5). Still, it is clear that of the nearly 200 rooms excavated by Morris in West Ruin, 53 have burials associated with them. Spatially, it appears that most burials occurred in rooms associated with trash and human waste found in the West Wing of West Ruin. Burials that contain five or more individuals are located in the northwest and southeast portions of Aztec West (McKenna, n.d.:5).

Kathy Durand-Gore (2010) has recently used 12 molar samples from Aztec and argued for linked genetic descent from Chacoan migrants based upon crest patterns and other discrete dental traits. This interesting approach suggests a productive avenue for further study that could be significantly bolstered by larger sample sizes.

Karl Reinhard (2008:86) demonstrated high levels of parasites associated with digestive tracts of inhabitants, as demonstrated via coprolite and trash contexts. He postulated relatively low levels of overall health compared to occupants of other great houses (e.g., Bonito and Salmon). Parasitic infections would have suppressed the immune system and made the population susceptible to introduced diseases. Secondary effects would have been “wasting” and had high levels of contagion. Reinhard postulates that inadequate sanitation at Aztec, despite nearby active water sources, was responsible for this drastically poor health assessment (Reinhard 2008:93-94).

Ryan Harrod is in the process of preparing a systematic study of demography at Aztec. While Harrod's research is ongoing, some of his preliminary findings show that there is an unusual gender differentiation in Aztec burials: at Aztec West and East (like Pueblo del Arroyo in Chaco Canyon), female/male ratios are significantly higher than 61% to 38% (though he has not yet determined if the finding is statistically significant). In addition, Harrod has found that Aztec West and East have significantly higher representations of sub-adult burials than sites in Chaco Canyon (Harrod, personal communication 2014). A separate study, contracted by the author with a biological anthropologist (Paul Sandberg), directly examined 63 unpublished, unanalyzed, lost photos of burials from Aztec and surrounds. Much of the data is from the Annex (**Fig 1.5**). Morris determined its construction and chief occupation occurred in the late 1200s (some from the Annex, some from sites within a quarter mile of Aztec West).

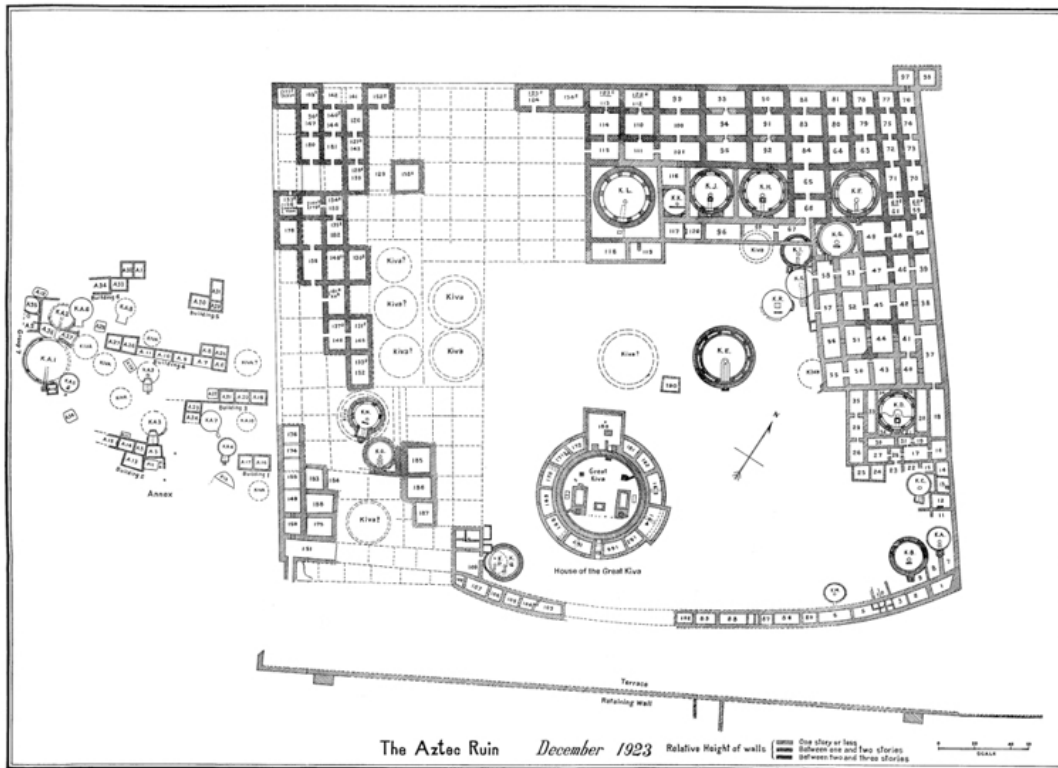


Fig 1.5: Aztec Ruin and Annex, 1923, Earl Morris.

III. History of Research at Aztec

Work at Aztec over the last 160 years can be divided into three periods. 1) *Historic Period* (1776-1915), 2) *E.H. Morris Period* (1916-1934) and 3) *Recent Work* (1935-2012). These divisions focus on 1) the geological, geographic and early Anglo explorers' documentation of the site; 2) the period when nearly two-thirds of the site was excavated and the era from which most of the data used in this dissertation derive; and 3) subsequent smaller-scale projects associated with National Park Service research and conservation efforts, drainage and landscape modifications, small-scale academic work, and CRM/compliance efforts. Each of these periods is detailed below.

Historic Period (1776-1915)

Aztec is quite rich with historical accounts of its past that date back over nearly two centuries. This work has been documented elsewhere (Lister and Lister 1990; Reed 2008; Sheik 1988), but a brief, condensed summary here may be useful to highlight a number of features associated with Aztec that were often not recorded on current and historic maps — a phenomenon that I return to later.

The first written accounts of the re-discovery of Aztec by Anglo explorers might possibly have been during the Dominguez and Escalante Expedition's "splendid wayfaring" in 1776 (Dominguez and Escalante 1776). Both Reed and the Listers hypothesize that even though the Franciscans did not discuss the ruins explicitly, they described fertile bottomlands along the Animas as a prime site of future colonization, and their map-maker Miera y Pacheco later suggested that Aztec would be an ideal location for a presidio and settlement (Bolton 1951:245). The region first appeared in published form, in J.H. Colton's map in 1850.

The first clearly documented encounter by non-native Americans with Aztec Ruins comes from J.S. Newberry, a US army geologist, who was a member of an expedition under Captain J.N. Macon. On August 4, 1859 Newberry left camp on the Florida River to visit...

some extensive and interesting ruins situated in the valley of that stream some twenty miles above its mouth... The bottom-lands are from a mile to two miles in width, and quite fertile; the river is bordered by thickets of willow and buffalo-berry, with groups and sometimes groves of cottonwood. It is in this part of the valley that the ruins are situated. The principal structures are large pueblos, handsomely built of stone, and in a pretty good state of preservation. The external walls are composed of yellow Cretaceous sandstone, dressed to a common smooth surface

without hammer-marks; in some places they are still 25 feet in height. As usual in buildings of this kind, the walls were unbroken by door or window to the height of 15 feet above the foundation. The interior shows a great number of small rooms, many of which are in a perfect state of preservation, and handsomely plastered. These larger structures are surrounded by mounds and fragments of masonry, marking the sites of great numbers of subordinate buildings; the whole affording conclusive evidence that a large population once had its home here. The fragments of highly ornamented and glazed pottery which cover the surface in the vicinity of these buildings, as well as the peculiar style of architecture in which they are constructed, show that the people who built and occupied these structures belonged to the common aboriginal race of this region, now generally known as the Pueblo Indians. (Newberry 1859:79-80)

Rogers Birney, co-founder of the National Geographic Society, identified (again) Aztec Ruins as part of the Wheeler Survey in 1875, when he was a young lieutenant in the US Army: "The most extensive ruins met with were on the right bank of the Las Animas River, about twelve miles above its junction with the San Juan," he wrote in a report for Wheeler's official record:

I had been previously informed of this, my informant stating that he had counted 517 rooms in one pueblo. On visiting the ruins we found what had once been, apparently, quite a town, with two main buildings and numerous small ones about them.... Want of time prevented me from making measurements and obtaining much accurate data that I desired. (Birnie Jr. 1875:1099-1100)

It was not until 1878 that the first anthropologist visited Aztec. Lewis Henry Morgan spent the warm summer day of July 22 mapping West Ruin and provided an archaeological perspective that differed from the simple observations and speculations of previous explorers (Morgan 1879; Wissler 1921). He published a brief report and presented his findings at the American Association for the Advancement of Science in August of that same year. Morgan's map (**Fig 1.3**) shows a C-shaped, southeast facing

structure with the convex enclosing wall to the south and three *estufas*, including the great kiva. He also includes what was later called the *Annex* by Morris, as an immediately adjacent wing occupation against the west wall of Aztec West, and three platforms linked by a causeway immediately south of the main ruin.

It is these that were reminiscent, on a smaller scale, of those platforms found to the south of Pueblo Bonito in Chaco Canyon. Morgan estimated the 25-foot standing walls to have been 5-6 stories originally and provided room dimensions from access points already cut by locals (Morgan 1879:547). He compared the builders of Aztec to those of Chaco and assessed the Aztecs' skills as appropriate to the "Advanced Barbarism" level of cultural development. Morgan went on to make ethnographic comparison to the modern Pueblo of Taos, and technological comparison to ruins found in Old Mexico. After completing his map, Morgan also briefly surveyed the surrounding area and identified three additional great houses and five small sites within the immediate vicinity (Morgan 1879:538). This was the first archaeological assessment of the Main Ruins Group at Aztec.

Fourteen years later, in 1908, Warren K. Moorehead, a schoolteacher from Exeter and self-taught archaeologist, noticed a gap in the burgeoning literature of Southwestern archaeology and rectified it by publishing his notes from a visit to Aztec Ruins in 1892 (there is no indication he saw Morgan, but they were at the site during the same year). Over the course of two weeks during that year, Moorehead, with the help of civil engineer Clinton Cowen and a crew of ten, surveyed and mapped a number of ruins along the Animas drainage and created a detailed map of what he described as the

major landmark and principal ruin that was Aztec West (**Fig 1.6**) (Moorehead 1908:255-256).

Moorehead judged the ruins to be slightly smaller than had Morgan — four stories tall, and with eight kivas in the debris that rose 23 feet above modern ground surface (Moorehead 1908:258). Much like Morgan, Moorehead was also interested in the areas immediately around Aztec West. He described in detail the quarries on the terrace above the ruins from which stone was mined and where numerous axes and hammerstones were found scattered about. “A road trail or road leads from the ruins over the hills, across the valley, and back to the mesa where the quarries are” (Moorehead 1908:257). There was a clearly demarcated trail that led to the quarry, still visible in Moorehead's time, parts of which are still visible today (and which show up particularly well on LiDAR). “The trail does follow the easy grades, but passes directly over a high and steep slope of the mesa, elevated perhaps 150 feet above the plain, and bears every evidence of being well-traveled” (Moorehead 1908:257). In addition, Moorehead noted “superficial evidence of thousands of small plots that had been under

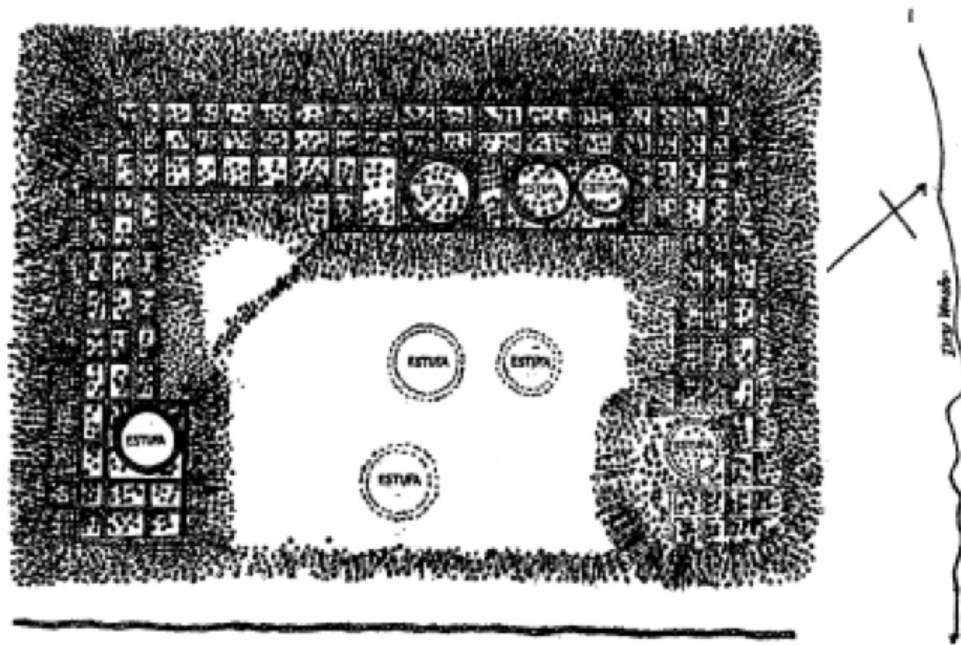


Fig 1.6: Moorhead's Map of Aztec West and nearby small sites.

cultivation and which lay some feet below the surrounding surface” and included the first description (corroborated in Howe 1947) of a major canal running east/west at the base of the Mesa with dozens of offshoots that watered the entire valley (Moorehead 1908:258).

T. Mitchell Prudden also visited Aztec, and his 1914 paper compiled his data from a survey of Southwestern pueblo architecture. He determined that large site complexes like Aztec were built and occupied by families or clans (1914:33). Prudden's 1903 paper on Puebloan architecture asserted that its monumental construction was used as a means to convey both secular and ceremonial impulses. It was this argument that likely laid the foundation of Morris's later interpretation of the site as a modern Puebloan antecedent — a relatively new concept at the time (Prudden 1903:2).

Drawing from personal recollections of life in Aztec, Sherman Howe (1947) recounted the first foray *into* the ruins in the winter of 1881. Along with several

classmates and an intrepid teacher, Howe, then only a child, “broke into” three rooms on the northwest corner of the site. Two of these are thought to be Rooms 198 and 197 (according to Morris's numbering system). Howe recalled entering an entirely empty, airless room, and exploring two others that were full of burials and associated grave goods. He also recalled landscape features that are no longer visible.

It was the belief of many in an earlier day that there was a tunnel or underground passage connecting the two pueblos [East and West Ruin]. I have seen evidence that almost convinces me that such is the case. If there is such a thing, I know about where it is and have tried at various times to interest archaeologists in making an investigation. If there is a tunnel (and there is something), it would be only a small job to find it. Perhaps it will be uncovered someday (Howe 1947:7).

Howe describes indications of some ninety sites in surrounding area, and irrigation canals near the ruins that could be traced between West Ruin and the mesa and emptied into the Estes Arroyo. He also identified the intake on the Animas three miles above Aztec. However, he laments that all traces of the canals were eradicated by farming practices in the last decade of the 19th century (Howe 1947:9). Later, Morris corroborated the site's irrigation practices and alluded to destroyed canals and grid gardens (1919:8).

Several early photographs of Aztec West were sent to Earl Morris in 1928 that accompany a note written from A.V. Kidder. The note indicates that the three images were taken by an “Ann Arbor man” in 1892. The photos show two interior room shots taken somewhere in the northwest corner of Aztec West. This would indicate at least some rooms were accessible at the time Morgan, Howe and others first began exploring and writing about Aztec (CUMNH_ARCHIVES580-585).

The E.H. Morris Period (1916-1934)

Earl Halstead Morris was responsible for a vast majority of the research conducted at Aztec Ruins. He was the first trained field archaeologist to conduct a long-term excavation project at Aztec West, from 1916-1922 (**Fig 1.7**). Morris, a local boy born in Chama in 1889 and raised in Farmington, was engaged to work for the American Museum of Natural History in 1915 (see Lister and Lister 1968), and his contract was extended to work with Nels Nelson at Aztec proper in 1916. The early part of the summer of 1916 was spent in Pueblo Bonito, after which Morris and Nelson returned to Aztec, took numerous photographs, burned some brush off of Aztec West and sunk a number of trenches into one of the refuse mounds. By the end of the summer, duty recalled Nelson to New York, and Morris continued to supervise the work at Aztec alone. By the end of 1916, he and his crew had excavated much of the Southeast portion of Aztec West — what Morris termed to be the most recent, most poorly preserved portion of the ruin, but which had the least over-burden. Over the course of the next six seasons, Morris would excavate all or part of 172 rooms in Aztec West, 12 rooms in Aztec East, much of the Annex, and locate and dig several small nearby sites (most within a mile of the Aztec complex) (Morris 1915, Morris 1928).

Morris published five monographs on his work (Morris 1919, 1921, 1924a, 19234b, 1928), with plans for an additional three — on kivas, general architecture, and specimens (Morris 1919:267) which he was never able to complete. In addition to monographs published through the American Museum of Natural History, the work was covered by *Harpers Weekly*, *El Palacio*, *Reader's Digest*, dozens of local newspapers, and

the New York Times, and was recorded in print and on film by the National Geographic Society. Besides making Aztec famous and shepherding it into National Park standing (in 1924), Morris provided the first, clear, definitive interpretation of what Aztec *had been*. With minimal dissent, which will be discussed below, Morris's interpretation of Aztec — namely, its 11th and early 12th century Chacoan founding, mid-11th century

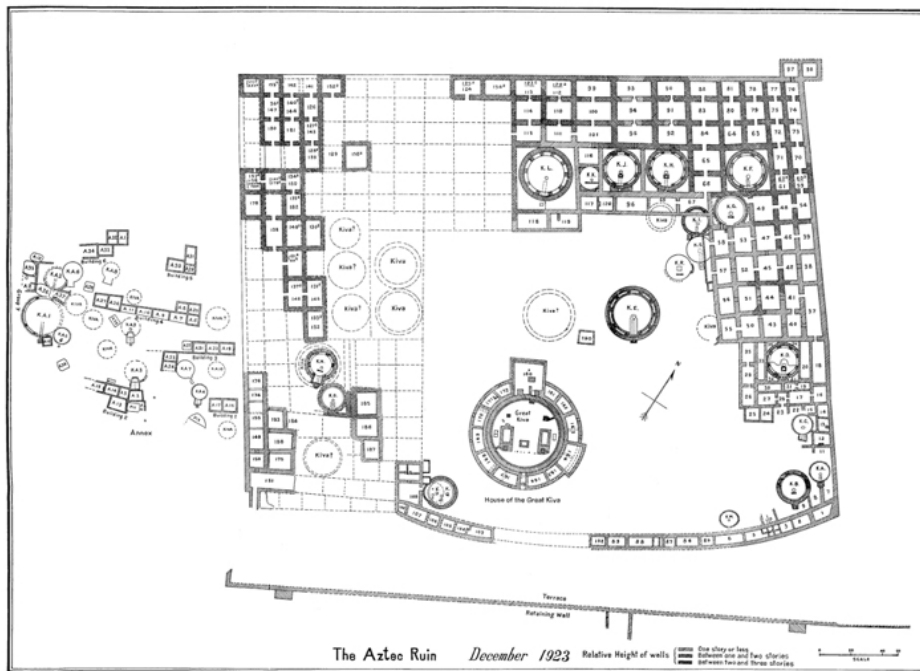


Fig 1.7. Map created by Earl Morris, 1923, which indicates rooms and kivas excavated in Aztec West (the great house shown) and the Aztec West Annex (the grouping of small buildings just to the west of the great house)

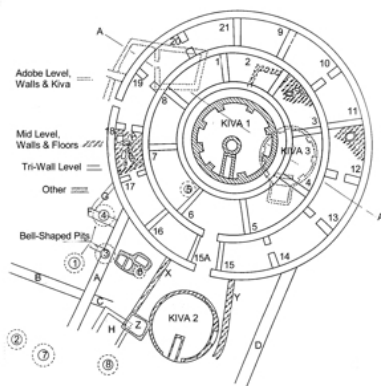


Fig 1.8: Hubbard Tri-Wall

abandonment, and subsequent Mesa Verdean re-occupation — became *the* Aztec narrative. Brown et al. (2008:2) lament that this notion of an occupational sequence at Aztec has been largely unquestioned, and stress that a re-assessment of the site's history is overdue.

Recent Field Projects (1935-2015)

Technically, Morris was the chief archaeologist for Aztec between 1922 and 1934, but he was away much of this time, and a number of site custodians were left in charge of the Ruins. George L. Boundey was the first official custodian at Aztec Ruins and served in that capacity from April 1927 to November 1929 (Lister and Lister 1990:86-101). During his first year of residence, he conducted excavations in seven first-floor rooms in the northwest corner of the West Ruin (Rooms 197, 198, 141, 142, 199, 200, and 201). In late 1927 and early 1928, he also cleared the line of rooms immediately to the south of this east-west passage (Rooms 239, 147, 144, 126, 205, and 206). Webster (2009a:2) wrote that Boundey claimed to have drawn a plan of each room detailing the locations of the artifacts, but no record of this has been found. A small notebook, with some sketches and notes of these rooms is present in the Morris Archives at CUMNH, however.

Charlie Steen was the first official NPS regional Southwest archaeologist. He conducted excavations in the West Ruin in 1938 to improve visitor access. In a report published in 1939, he describes excavations of three rooms (Rooms 202, 203, and 204) where workmen cleared the top three feet of fill before he arrived on site. He did make note of the stratigraphy, the absence of trash on the floors, discovery of eight burials

and a preserved roof. No pictures are known to have survived. Steen's excavations represent the earliest systematic collection of perishable artifacts from the West Ruin by NPS personnel (Steen 1939).

A significant excavation project was carried out at what is now known as the Hubbard Tri-Wall structure in 1953 (**Fig 1.8**). Park archaeologist T.B. Onstott cleared and trenched the structure in 1953, but left the NPS before his notes could be collected. The project was completed and recorded by Vivian (1959), who identified multiple construction episodes in this unusual building. These included three phases of building that began with a single, isolated kiva, a major construction period of a kiva surrounded by two rows of rooms, and final phase of occupation in a single, intrusive kiva (Vivian 1959).

In 1957 NPS archaeologist Roland Richert carried out the most extensive excavation at Aztec since the Morris era (Richert 1964). Richert excavated or recorded 24 rooms in East Ruin. Twelve of these were roofed, and at least eight had been open to the public for some time (as shown by graffiti carved into the wooden elements of the doors and roofs). Richert recorded and stabilized three rooms (15, 16, 17) on the East Ruin (West Mound). These rooms had been explored by Morris 41 years before but had remained undocumented before Richert's publication (Richert 1964) (**Fig 1.9**). A few years later, James Maxon trenched (3 ft x 36 ft) a mound immediately south of the NPS Visitor's Center (then the Earl Morris house) and north of the parking lot in the Spring/Summer of 1960 (Maxon 1963). Morris (as had Morgan) described this feature (1928:414) as a 125 x 55 x 8 ft high mound. In 1960 the mound was 30 ft in diameter

and 4.5 ft high. Pottery found in the trench ranged from PII to PIII, predominantly PIII Mesa Verde B/w. Maxon believed his work provided inconclusive evidence that the

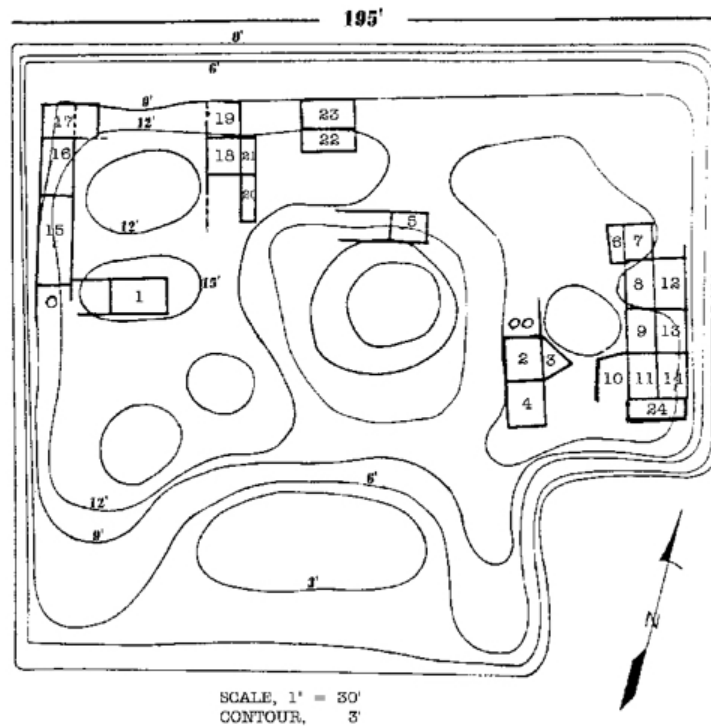


Fig 1.9: Richert's Map of Excavations at Aztec East

refuse mound was even associated with the main ruin group, and he disagreed with Morris "who said the mound contained large rock walled firepits, coarse charcoal and most of the pottery was from early or "Chacoan period occupation" (Morris 1928:414). Rather, Maxon thought the mound, while prehistoric, postdated Aztec, though he hypothesized that there may be Chacoan pottery further to the east (Maxon 1963).

In 1960, an unknown archaeologist wrote a brief account of "A Pit Complex in the Aztec Ruin." This unpublished report was donated to AZRU at an unspecified date (Letter on file, n.d. at AZRU). Excavation in Room 51 and 52 in West Ruin that exposed a circular masonry-lined pit, small bowl-shaped pit, or vent and a secondary rectangular

pit (in Room 52), and a large unlined jar-shaped pit with secondary masonry-lined pit built into it (in Room 51). These were the first clearly documented floor features that included sketch maps from Aztec West.

Additional work was carried out by Joel Shiner (1962) and Jim Trott (1984) who excavated Room 224 and 225 respectively and found dozens of perishable artifacts (Webster 2009). Shiner, whose report has just come to light dismissed his own excavations as “mere corroborations of Morris's work” (Letter, n.d., on file at AZRU).

Most work on Aztec West in the 1980s and 1990s actually involved its *backfill* while archaeological work during these decades tended, with some exceptions, to focus on areas beyond West Ruin. These years saw an extensive survey of sites within the park boundaries, which mostly targeted the mesa top behind Aztec West and East (Stein and McKenna 1988). This survey recorded 80 additional sites, approximately 2/3 of which were contemporary with the great house sites of the Main Ruins Group. In addition, they mapped and recorded Aztec North — a great house, thought to be an adobe construction, that may well have represented one of the earliest occupations of the Chacoan era. (Brown et al. 2008:12). Additional archaeological work in these decades included an intensive dendrochronological project run by Tom Windes, who cored and sampled thousands of *in situ* beams. Coupled with some of Morris's dendrochronological data, these projects were able to develop a sophisticated construction model for both Aztec West and East (Windes n.d.; Brown et al. 2008). This work demonstrated significant but progressively decreasing occupation in the Aztec West Ruin as it was slowly abandoned, and a much later and longer period of

construction and occupation at Aztec East.

Additional non-invasive work at Aztec during this time included a LiDAR (**Fig 1.10**) survey conducted by Rich Friedman that resulted in a sophisticated DEM model (2002) and an electrical resistivity and magnetometer survey of Aztec North conducted by Steve Lekson and others (2004) that, unfortunately, had mixed results. John Schwegman (2007) also tried magnetometry of the East Ruin, Mound F, and the area between Aztec East and West, and hypothesized a number of additional architectural features that included rectangular extramural structures (Schwegman 2007:4). The most recent extensive field project was the Aztec East Ruin Landscape Project (Reed et al. 2009), which intensively mapped modern and prehistoric features in the neglected East Ruin section of the Park using both conventional mapping tools and GIS.

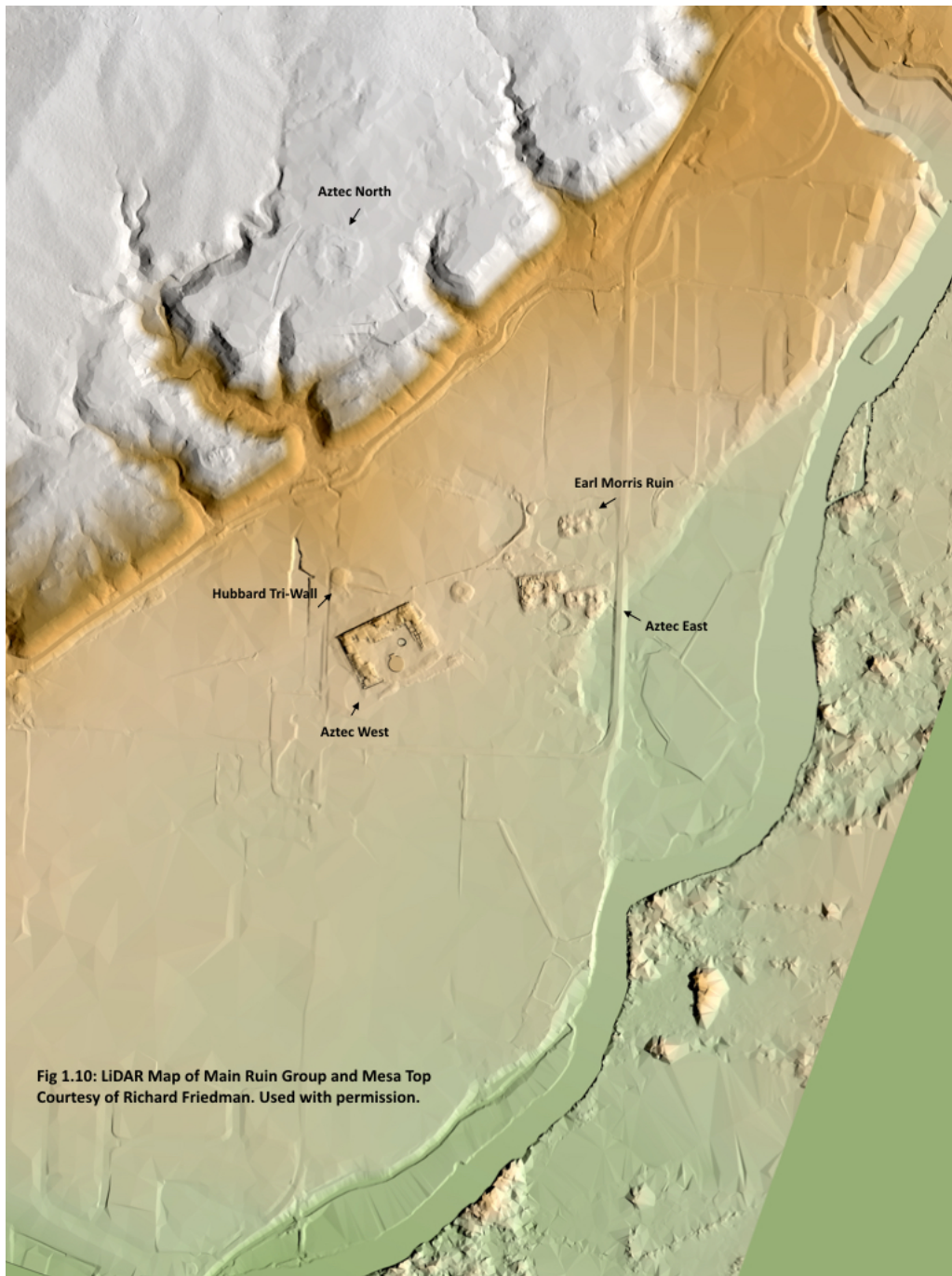
In addition to systematic archaeological research, modern Aztec residents have a deep oral history concerning archaeological materials on (or formerly on) their properties. Two residents in particular have discussed two great kivas that are visible on their land, just west of the current administration building (Kenny Turner and Matthew Symonds, personal communication, 2012).

At least nine historic maps exist for all or part of Aztec. These were created between 1877 and 1956 and were penned by Morgan, Moorehead, Nelson, Morris, and unnamed National Park Service employees. Examination of these maps indicates a number of rooms, kivas, great kivas, landscape features, and burials that were not recorded on later maps (**Figs 1.11-1.16**).

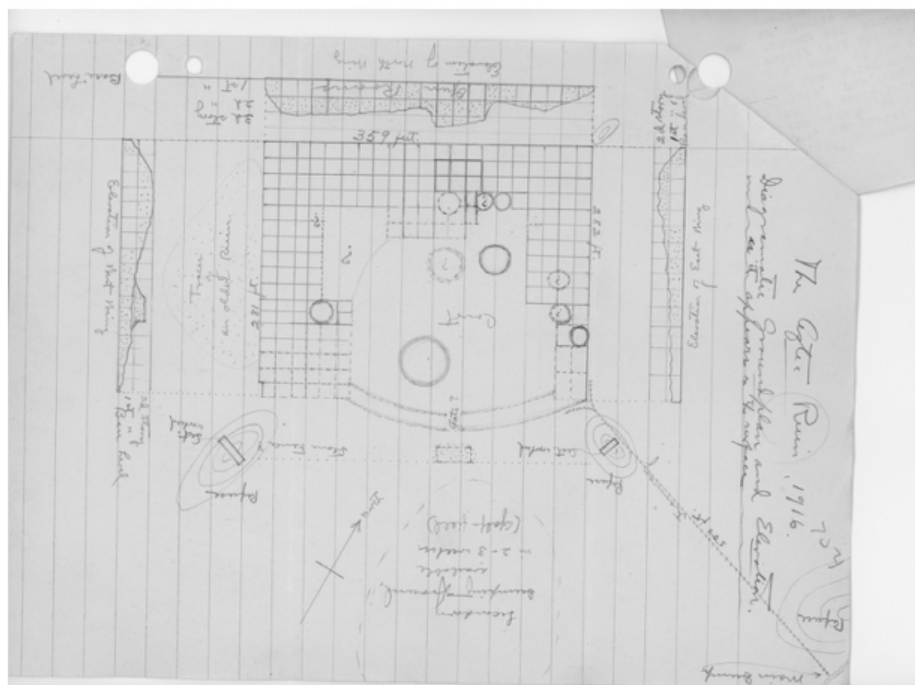
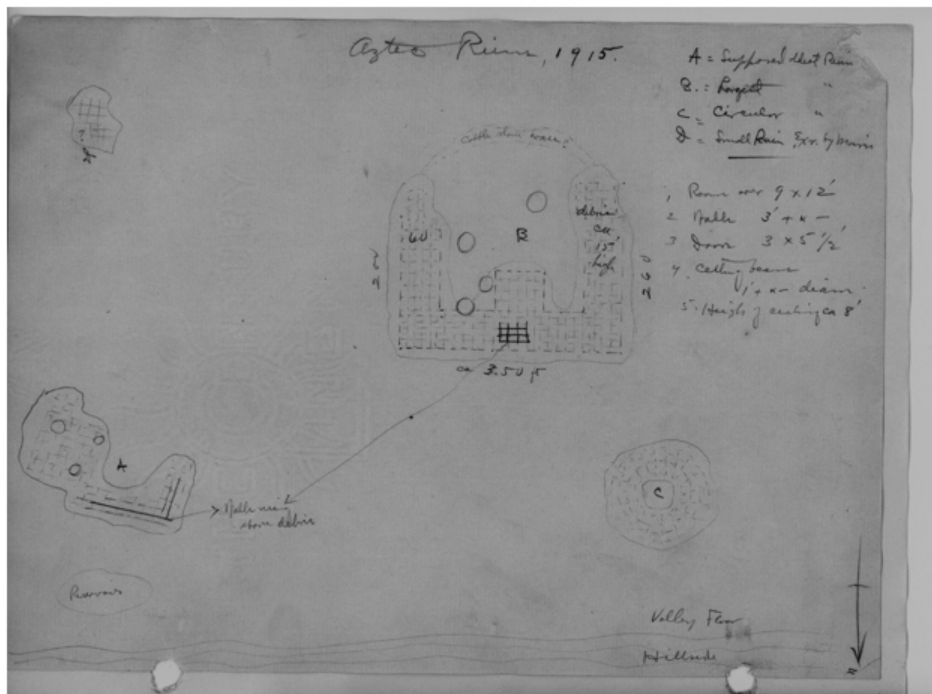
New research with old data is also currently ongoing at Aztec Ruins. An NSF

funded project run through Desert Archaeology drew together a collection of researchers to reassess migration and emulation models at Aztec based on assessment of architecture (Brown and Paddock 2011), pottery (L. Reed et al. 2011), perishables (Webster 2006, 2009), regional great house architecture (P. Reed 2011) and the Middle San Juan archaeological record overall (Clark 2011). These researchers concluded that migration had indeed occurred from Chaco to Aztec, thereby using new assessments of old data to confirm the earlier suggestions of others (cf. Irwin Williams 2008, Lekson 1999 and Lipe 2006 for assessment of migration and local development).

Current projects conducted by National Park Service employees include intensive photographic and architectural documentation and condition assessment of the standing walls, and a Fill Level Adjustment Project (FLAP) that is designed to reduce the overburden in a number of rooms in the North Wing of West Ruin. The removal of fill



necessitates excavation of a number of rooms to levels above the floor, but preliminary reports indicate that archaeologists have found a variety of pots, perishable artifacts (one intact basket), collapsed but well preserved roofs (unburned), and doorways. FLAP is ongoing; as the final report has not yet been written, I will not consider the results in this project.



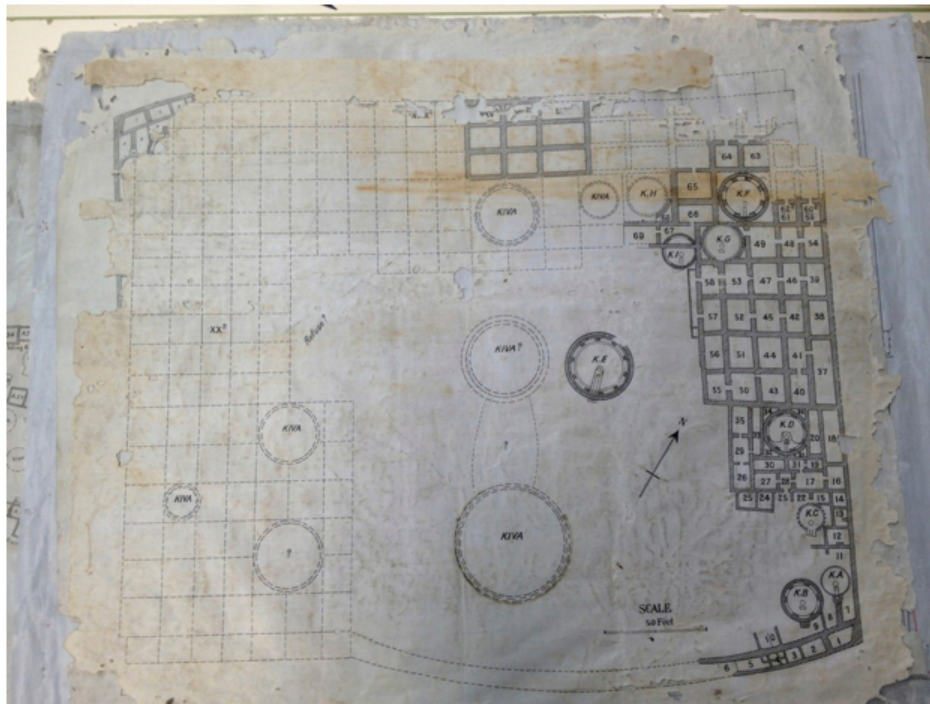


Fig 1.14: Aztec Ruin, 1919, Earl Morris.

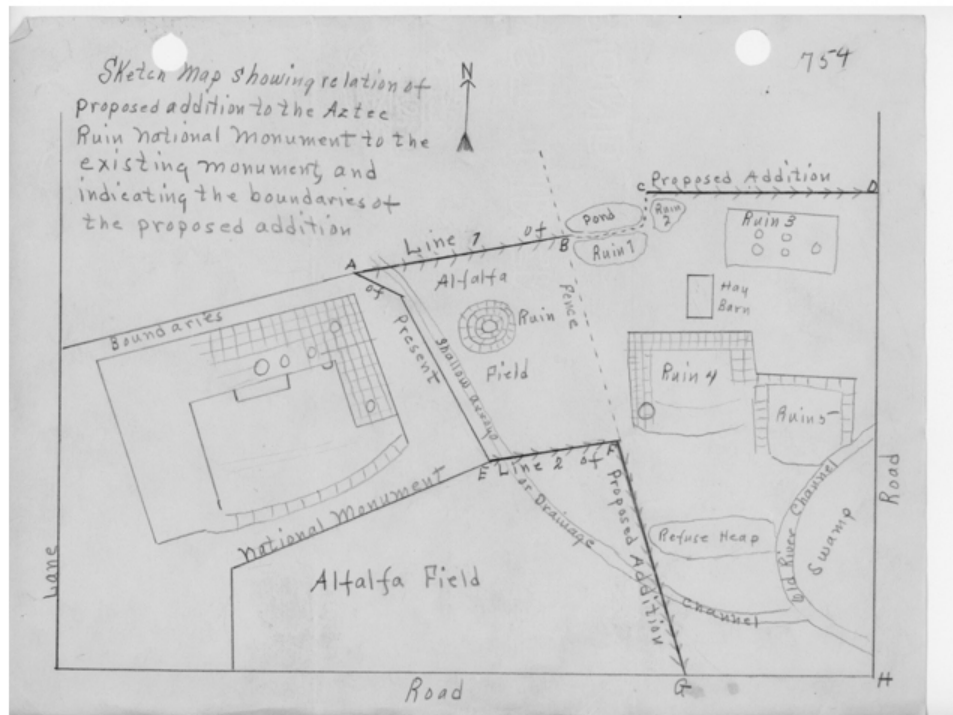


Fig 1.15: Aztec Mains Ruin Group, 1921, Author unknown, but may be Morris, or George Boundey

berms and roads — were an architectural anomaly in the Southwest but a hallmark of Chaco Canyon's identity. Great houses represented planned monumental architecture, significant labor investment, storage space, and restricted access; they demonstrated greater consumption of preciosities across distances and were home to higher ranked individuals (Toll 2006). As Chaco Canyon's influence increased by the 11th century, “Chaco Outliers” or great houses that emulated Chaco-style architecture were constructed in great numbers (200+) in areas outside the Canyon (Kantner and Mahoney 1999). To date, 194 great house outliers have been documented, scattered across an area that encompasses much of northwestern New Mexico, northeastern Arizona, southwestern Colorado and southeastern Utah (CRA, accessed June, 2015). There is little doubt that these similar buildings were associated with an integrated system of some type. Lekson (1999) compiled estimates for the extent of this Chaco Regional System, and they include conservative estimates of 30,000 sq km (Vivian 1991), a median estimate at 75,000 sq km (Wilcox 1990: Fig 2), and an expansionist estimate of 150,000+ sq km (Lekson 1991:Fig 3.10). “The Chaco Phenomenon” or regional system that centered on Chaco was first identified by Cynthia Irwin Williams in 1971. Since that time, archaeologists have struggled with determining how it was structured and organized.

Aztec, as part of the Chaco Phenomenon, is the next-largest site complex in the Chacoan system, an emulator or colony that expressed a form of shared identity through architecture, material culture and behaviors. It was occupied both during Chaco Canyon's and Mesa Verde's collapse and depopulation. The last generation of occupants

of Aztec witnessed, experienced, and participated in the end of an era. Their behaviors, bodies, homes, possessions, and trash provide insight into the processes involved and the outcomes of these societal transformations.

Those explanations previously suggested for the end of Chaco's importance and the role of Aztec are not wholly satisfactory. They demonstrate a number of implicit and explicit assumptions inherent to all studies of Aztec Ruins. Each of them maintains adherence to a particular theoretical framework derived from strongly held ideas of Chaco's place in the prehistoric Southwest. This is one of the chief issues related to Aztec studies: interpretation is inherently colored by ideas of what Chaco was. A frequent suggestion is that everything that became Aztec was derived from Chaco as the political capital, the place of high devotional expression, the pilgrimage center, the economic redistributive center, etc. This is not illogical. "That which came before" is clearly essential to interpretation and understanding in all social sciences. But it is important not to let research at Chaco unduly color our interpretation of evidence at Aztec. The data from Aztec should of course be reintegrated with and understood within the larger history of Chaco Canyon, but they should first be explored on their own, in a site-specific context.

A second problem is perhaps best summed up by Lynne Sebastian, who wrote in 2006:

A great deal of excavation has taken place at Chaco, the majority of it in the late 1800s and early 1900s — half a century before modern standards of excavation and research were developed. The excavation techniques were crude, documentation was cursory, and curation — both the decisions about what to keep and the accessioning and record keeping for retained materials — was often abysmal. We cannot use most of the pre-World War II data to answer

many of [our] twenty-first century questions (Sebastian 2006:420).

This echoes Schiffer (1976:193) who advocated that archaeologists ignore all previous lines of research in preference of original, scientific, hypothesis-based studies. This allowed the researcher a chance to develop a pure methodological approach unfettered by legacies of previous problematic research. While this advice is sound on a number of levels, it is inherently impracticable in today's world of preservationist archaeology, and it arbitrarily dismisses copious amounts of usable data from critical contexts (as we shall see).

New strategies to collect, assess, and extract usable information from legacy data are currently in development (Faniel et al. 2011). By necessity and increasingly by design, archaeologists have become reliant on historic, archival data or previous field research. Modern researcher/historians accept these data and their problems in what McVicar (1984:4-5) calls "critical historiography," representative of a general shift in sensibilities about the utility of historical data. Bruce Trigger argues that the gradual accumulation of archaeological data has constrained interpretation. In turn, this has increased the objectivity of archaeological research and enhanced its value for understanding the entire span of human history and the human condition in general (Trigger 1989:376). But he also points out that archaeological training itself is at fault for the long absence of critical assessment of field projects and their individual customs as passed through the generations: "Archaeologists don't study history; we study the history of anthropology as a field" (Trigger 1989:225). However, it seems clear that this history is essential for data recovery, just as it is vital for current researchers to be

critical of accepted interpretations of past research. Donald McVicker (1989) applied critical historiography to two contemporaries of Earl Morris — Frederick Starr (1858-1933) and Marshall Saville (1867-1935) — to illustrate their extensive contributions to Mesoamerican archaeology and subsequent dismissal by current researchers on the grounds that their work did not conform to standards of modern archaeology.

Between the (perceived) lack of training in historical methods, modern theoretical viewpoints that privilege hypothesis testing, current prejudice against prior work, and the theoretical viewpoints of any given excavator, work with historical archaeological data and records can prove extremely challenging. And in addition, there is always the issue that “No archaeologist publishes all the data” (Reyman 1989:44). The final nail in the coffin of legacy data use is the all too frequent problem of data and record loss that results in field notes, photos and maps being scattered to multiple institutions, destroyed, mislabeled, misfiled, or wholly uncategorized.

In the modern era of concern for conservation, preservation and economy, however, archaeologists can turn to historic records as a primary source of research material. Re-analysis of these records can result in incredibly useful interpretations or re-interpretations of underutilized data, including the field notes, maps and photographs of earlier colleagues. This phenomenon has been particularly true of archaeological work at Chaco Canyon (1896-present), where significant portions of the major great houses were excavated by a series of projects from the late 19th through the mid-20th centuries. Lekson's (1983) reconstruction of Chetro Ketl architectural data, Akins' (1986) compilation of burial data, and Plog and Heitman's (2010) piecing together

of Pepper's Bonito burials, are the t highest profile uses of historic data thus far. Since the last major excavation project (where multiple, previously unexcavated rooms were dug) in Chaco Canyon in 1978, a veritable cottage industry of data re-analysis has sprung up (this is even in addition to the smaller-scale projects conducted at Chaco in recent years by Crown and Wills, the one investigating a single room carefully and the other retrenching earlier work conducted by Judd). Non-destructive data collection (architectural documentation, landscape survey, soil analysis, petrography, remote sensing etc.) has continued nearly unabated, and many reports have relied upon original field data — which often pre-dated the authors who published them. These include re-analyses of artifacts (Crown et al 2015; Neitzel 2003a, 2003b; L. Reed 2008; Toll and McKenna 1987, 1997; Vivian et al. 1978; Webster 2011), re-assessments of architecture (Bernardini 1999; Kantner 1999; Lekson 1982, 1984, 1986; Van Dyke 1999; Wills 1990, 1997; Windes 2001), re-evaluation of landscape features (Doyel 2001; Kantner 2000; Kincaid and Stein 1983; Windes 1978), and re-examination of field notes (Neitzel 2003; Plog and Heitman 2010).

The application of legacy data to ongoing archaeological questions is neither a new, nor an unrecognized issue in Southwestern archaeology. Lekson et al. (1983) recognized this more than three decades ago:

Our study of Chetro Ketl illustrates an increasingly important aspect of archaeological research — old, unpublished notes. There is an abundance of old notes in Southwestern archaeology.... But in the past, most archaeologists have used old notes only to augment their excavations at the same site, or —very selectively — to buttress broader arguments. With the advent of conservation archaeology (along with the spiraling costs of field work), the unpublished excavations of yesteryear are now being used less as privileged information than primary data. This trend is ethically responsible. More research should be

structured toward this largely untapped resource. The challenge is asking questions that old notes (and old reports) can answer (Lekson 1983:271-273).

Archival data from Aztec has the potential to answer this call — it only takes a little bit of non-traditional structuring to reframe questions in order that the available data might provide some demonstrable answers. Many of the questions about Aztec — and particularly those related to its last century of occupation — can and must be answered by data already collected from earlier investigations.

V. Aztec's Role in the Chacoan World

Aztec, only 80 km north of Chaco Canyon, has been the subject of far fewer intensive or extensive research projects than has Chaco itself. As we have seen, however, it was the subject of intensive excavations by Earl Morris (1916-1922) and has seen ongoing research by the Park Service and other parties. Interpretations of its circumstances vary.

1. Morris (1928) and Brown et al. (2008) alike suggest Aztec was occupied by groups directly associated with Chaco who founded Aztec West and built much of it in a series of concentrated efforts from around 1090 (Morris thought a few decades later) until 1130. They suggest these groups built much of Aztec East slightly later, though with fewer tree ring dates to corroborate the hypothesis. Morris (1919 and 1928) postulated that the site was initially occupied by “Chacoan” people, whom he associated with tabular masonry (akin to that found in Chaco Canyon), pottery (Cibola whitewares), burials (without cradle-boarding), and elaborate painted wood artifacts. He then identified what he termed as a hiatus, when rooms at the site became filled with trash, before the site was re-occupied by Mesa Verde people whose “cultural senility” (Morris 1928:420) was manifest in pottery (McElmo and Mesa Verde B/w), architecture (McElmo blocky style) and burials (flexed, cradle-boarded). This group was responsible for the modification of many of the rooms in which temporary walls were erected, new occupation atop old trash-filled rooms, the construction of “Mesa Verde” style kivas (round rooms) inside surface (rectangular) rooms, and the partial

burning of the site. Brown et al. (2008) see much the same pattern as Morris, with the exception of the pronounced hiatus. They see this episode not as a complete abandonment but a period of limited, albeit continuous, occupation at the site.

2. Cynthia Irwin-Williams (2008), who excavated nearby Salmon Ruins (initial occupation 1080-1120) on the San Juan River, viewed regional power both at Salmon and, by proxy, at Aztec as a byproduct of Chaco's development of new and better technologies associated with food production. This, she suggested, allowed for expansion of its inhabitants' control into a broader geographic region with more productive resource areas, which in turn led to responses with socio-ideological consequences (2008:273-274). Thus, she interpreted the construction of Salmon as pre-planned engineering on a large scale that demonstrated specialists with some political authority directing its activities for a short period of time during the primary occupation of the site (2008:274). A secondary occupation shortly after (c. 1140) demonstrates a complete breakdown of whatever system had ordered construction before by an aggregated, but non-nucleated Puebloan society.

3. Stephen Lekson (2006, 2009, 2015) suggests Aztec represents a political and geographic shift from a regional capital at Chaco to one centered at Aztec. The site of Aztec (like Chaco before it) housed a few political leaders who oversaw a vast regional system of some 120,000 sq. km. With the move north, Aztec took over the political organization of the region and managed various outposts (known as Chacoan outliers), controlled trade, and saw that the region was administered through an advanced network of roads, line-of-sight communication, and integrative architecture (including such monumental features as great houses and great kivas). The entire regional system collapsed sometime at the end of the 12th or beginning of the 13th century.

4. For W.H. Wills (2009), Chaco was an "idea" more than an expression of power or authority. To him, the Canyon embodied a unifying theme that brought divergent groups together but did not necessitate hierarchical relationships or a high degree of localized authority. Rather, Wills believes that Chaco was inhabited by numerous ethnic groups who serially occupied and re-occupied the Canyon, and who expressed their identity through standardized production of material culture (seen in pottery and architecture). These groups came and left the region (and came again), but the idea of Chaco remained constant in Wills' interpretation. If this pattern holds at Aztec, a pattern of serial occupation of the site by different groups with slightly different material culture, maintaining a continued or shared identity (Chacoan or other), then much of Aztec's interpretation until now — of Chacoan founding and abandonment followed by occupation by a different group of people — might be incorrect.

These are the four most influential interpretive perspectives held by modern Aztec scholars (Van Dyke 1999; Kintigh 2003; Brown and Paddock 2011; Glowacki 2006).

However, even these relatively straightforward interpretations are not without detractors. For example, Brown et al. (2008) note that modern archaeologists who work with Aztec's data have been content to use Morris' suggested chronology and interpretations without critical assessment — a complacency usually due to a lack of new data. Even when modern archaeologists have sought to re-analyze the data from early excavations at Aztec, they have tended to offer simple interpretations couched comfortably within one of the current theoretical viewpoints. Thus they explain their observations in terms of “emulation” or “migration” (cf. Reed 2011a; Webster 2011; Washburn and Reed 2011). This may or may not be correct, but it certainly is a limiting methodology. So how might research on Aztec get past conventional descriptions of Chaco and its influence, and move towards new thinking?

Many questions remain concerning much of Aztec's archaeology and its interpretation. One of the chief barriers to progress (aside from the absence of new excavation projects) is simply paring down the central research questions to a manageable number. Even after this is done, structuring those questions in a manner to make them answerable is challenging. Although much research has been accomplished at Aztec, a significant amount of the early work that has been published is inadequate, superficial, or lacking in synthetic analysis. These issues are exacerbated by the unexamined biases inherent in most early studies (particularly with respect to ethnicity and duration of occupation) that Morris and others postulated, which have yet to be systematically assessed. A new approach to these issues is warranted, one that is tailored to the specific issues at Aztec. In particular, it appears that while archive-based

re-analysis will be extremely fruitful, it is particularly Morris's photography that has the potential to answer many of the questions listed above. Indeed these data have the potential to lead Aztec studies in exciting new directions.

VI. Research Trajectories

How might we define the most important pared-down central research questions in an investigation of Aztec that reassesses old data and mines them for new information? How can we best pose those questions in a way that will prove fruitful? How can we rethink our approach to those data with a nuanced understanding of Aztec's modern archaeological investigation in order better to understand its ancient past? Again, we turn to Sebastian (2006:419-420) to outline the pathways of 21st century research. As a directive to younger scholars she delineated a number of research trajectories and key questions that still surround Chaco and its regional system. I have selected three questions in particular from Sebastian that can be directly answered through an examination of legacy data from Aztec, even within the confines of a single dissertation — and Aztec's data should in the future shed light on others of her questions as well. This demonstrates the rich potential of Aztec for illuminating our understanding of the greater Southwest during the Chacoan and post-Chacoan periods and show the importance of legacy data in considering even the most long-standing and largest of archaeological questions. The issues Sebastian identifies are basic, even fundamental. They include (and I paraphrase):

1. The need to compile and organize new empirical data on artifacts, architecture, and mortuary contexts;
2. The need to address the functionality of small kivas, what was in them and how they were used;
3. The need to assess whether it is even possible to make a reasoned analysis of Aztec: did it continue to be a regional center after 1140? How did its great house function?

The approach to considering these questions required by using legacy data is straightforward. First, we formulate a research design based upon the primary questions, and then we implement a data-gathering plan. The latter part of this approach must be tailored to the legacy data available, however. Because of the sheer volume of information available about Aztec, a new method to deal effectively with the data has seemed to me necessary. I have considered the research questions listed above in tandem with a new approach: developing and applying *multimodal analysis* to the data as a whole. The methods will be detailed in Chapter 3, but the purpose of a systematic methodology in the face of the variety of data types available became clear shortly after this project began. The databases I have assembled, and the multimodal approach to understanding the data, helps to organize the data I have collected to make it usable and useful for future scholars, and also helps to mitigate what historians term “the serendipity factor” in historical research (McClellan 2005:1). The latter refers to a researcher's tendency to pursue and focus on data that possesses characteristics (clarity, provenience, volume of information, or interest/wow factor) that draw the researcher to it, often at the expense of other lines of evidence or inquiry. Thus it is my hope that the methodology I have employed helps reduce user bias and error, collecting and collating data in a way that increases its objective utility both to me and to other

researchers.

I viewed Aztec data as a laboratory to develop and apply a clear method to archival data that would help to systematically examine available data, one which could potentially be applied to other archaeological projects with historic data collections as well. While archaeologists have used legacy data in research for years (e.g., Akins 2006; Lekson 1983; Marden 2015), few have been explicit about their methodological approach. In fact, since many archaeologists develop and carry out their own research design on primary data, they sometimes find themselves ill-equipped to handle data that were collected by others.

I have searched disciplines outside of Anthropology to find methods that might be usable to the vast and varied array of data (photos, maps, journals, letters, etc.) available concerning Aztec. Most productive has seemed to me to be an approach stemming from the fields Sociology and Education, multimodal analysis. This methodology is equipped to handle different modes of information, type and order them, apply qualitative and quantitative description, and output usable, repeatable and narrative/synthetic-ready data-sets. I knew that such methods would need to be tailored for archaeological data, but the benefit of the application was that data — all data — from Aztec could be examined systematically, and the normal “serendipity” factor was minimized. The possibilities opened by multimodal analysis allowed me to formulate my primary research questions (above) in a way that drew on Sebastian but couched the wording in a manner conducive to producing results from the data available to me.

From this marriage of question and method, however, unusual (and unexpected) research trajectories developed. This dissertation will examine in detail three sets of data — from one kiva, a selection of mortuary contexts, and a single room.

1. Kiva D (Chapter 4) — What it can tell us about the end of the Aztec community, about violence, kiva function, atypical burial, the life of a structure, and forensics and forensic photography?
2. Burial practice at Aztec (Chapter 5) — Are there particular patterns in place, type, or demography of burials? Do they resemble those at Chaco and other great house burial sites? This chapter will examine the location and association of burials, how they are concentrated in mausoleum-like tombs, and who is buried (or who is not).
3. Room 139 (Chapter 6) — What can be learned from an atypical, possibly elite burial, the social and political implications of associated pottery and perishables, and the room's history?

Using multimodal analytics to consider each of these case studies, I have synthesized and analyzed new data to understand how Aztec (its kivas, rooms and people) may have functioned in the 13th century. The lines of evidence for these data and the arguments that develop from them derive mostly from photographs that languish in a museum. These studies illustrate how Aztec's occupants dealt with social upheaval, environmental downturn, and the continuation of some (and systematic rejection of other) traits associated with Chaco.

Chapter 2: Chaco and Aztec

A complete review of Chaco historiography is beyond the scope of this research project and has been ably elucidated elsewhere (Lekson 2006; Mills 2002; Van Dyke 2007). However, because of Chaco and Aztec's inextricable ties, a brief chronological review of the two sites will be provided here, emphasizing aspects that relate to new or recent understandings developed from work with legacy data.

Within the Canyon, advances in understanding Chaco's origin, florescence and collapse have resulted from major fieldwork projects in earlier years (Pepper, Judd, Hewett, the Chaco Project, etc.) and smaller-scale recent projects with great potential for refining our interpretations (room re-excavation, Crown 2016; stratigraphic analysis of refuse mounds/dance platforms, Wills et al. 2012). Many researchers at Chaco continue to supplement published Chaco data through ongoing work with archives and museum collections, however. This approach has led to a resurgence of new interpretive research (see Mills 2002 for some of the most significant developments). Additional recent legacy-data-based studies include the discovery of cacao (Crown 2009), new AMS dates on macaw burials (Plog 2014), re-analysis of the elite burials (Plog and Heitman 2010; Marden 2015), reconstruction of Bonito's footprint (Stein et al. 2003), artifact distribution (Neitzel 2003), and ritual practice (Mills 2015).

This renaissance of archive and records-based data analysis has led to significant new understandings at Chaco. These include reassessment of the site's initial development —how early and by whom — and the level of complexity and hierarchy

present. Approaches that investigate the Canyon's interaction with its environs have demonstrated early and strong trading ties with Central America, adaptive water control features, and ritual place-making in seen and unseen place. The bottom line is that each of these legacy-data studies (and others in progress) propelled Chacoan studies forward without reliance on new excavation. In this way they afford a viable and essential addition to the kind of investigation made possible through re-excavation or small-scale new excavation.

Similar efforts to work with legacy data have recently been initiated at Aztec. The following is a brief chronological summary that spans the growth, development and external impact of Chaco Canyon, the foundation of Aztec and possible interaction between the two capitals, the rise of Aztec in the wake of Chaco's collapse, and the eventual dissolution of Aztec itself. This brief overview of historical developments and the Chaco Phenomenon provides a chronological and social framework for the questions that will be addressed in the later data chapters.

I. Aztec and Chaco Chronology and Summary

Origins (750-900)

This period is characterized by immigration and into and out of the Canyon (Wills 2009). Such population movement may account for a high degree of variation in social identity and ethnicity and may help to account for variability in elements of Chacoan culture (Wills 2009). One argument is that nonlocal materials were status markers, votive offerings or prestige goods. These materials were most often found in great

houses (rather than small sites), and may be (along with architectural differentiation) an indicator of status or identity differentiation amongst canyon-dwellers. In early models of Chaco development, centered around notions of chiefs and chiefdoms, some have postulated that individuals or groups who had control over non-local goods may have had greater status or authority (Irwin-Williams 1980; Vivian 1991).

The region where Aztec Ruins would eventually be constructed was sparsely occupied at this time. Stein and McKenna (1988:26) only identified 6-7 BMIII/PI sites in the vicinity of the Park, and none of those were located on the alluvial plain where Aztec would one day be built. Morris (1928) and Vivian (1959) alluded to early pitstructures found beneath Aztec West and the Hubbard tri-wall respectively, but they did not go into detail or collect pottery or other datable material.

Bonito (900-1120)

Theories of Chaco's origins are myriad, but it appears safe to suggest that it was built upon economic exchange of nonlocal goods or preciosities cannot explain the extraordinary aggregation, labor investment, and monumental construction that began in Chaco Canyon by the 9th century. Windes and Ford (1992) and Wilshusen and Van Dyke (2006) have postulated both in-Canyon aggregation and development was likely bolstered by in-migration by groups from the Mesa Verde region that may have brought architectural and ceramic technologies to the Canyon that resulted in the development of Penasco Blanco, Pueblo Bonito and Una Vida by the beginning of the 10th century. Plog and Heitman (2010) have documented high status burials associated with these

early constructions with C14 dates that indicate occupation by the beginning of the 9th century.

Development again spiked at the beginning of the 11th century as ground was broken on three additional great houses: Hungo Pavi, Chetro Ketl and Pueblo Alto. Explanatory models of Chaco's origins are varied. One is a corporate leadership model, where goods were used to promote communal, ritual and labor organization as opposed to individual prestige (Blanton et al 1996). Alternatively, Renfrew (2001) hypothesizes a ritualized place of high devotional expression and pilgrimage, where there is limited population beyond pilgrimage and social differentiation is minimal, given the few hierarchically distinct burials. Kantner (1997) and Van Dyke (1999, 2007) believe Chaco to have been a ritual center where leaders obtained followers through competitive action. Nelson (1995) and Vivian (1991), in a related model, postulate hierarchically organized ritual leaders who cooperatively manage the labor of others. For example, Vivian says that small and great houses were the residences of ethnically distinct social groups with dualistically based leadership in rotating sequential hierarchy (in great houses) and lineage-based (in small houses). Others, like Mills (2002) and Yoffee et al (1999) argue that ritual at Chaco was fundamental and that “the ritual nature of Chaco cannot be reduced to its being the handmaiden of economic and/or political institutions” (Yoffee et al 1999:266). Mills believes that the most significant things produced during this period (and which may have contributed to its origin) were relatively intangible. She classifies such things as “ritual” knowledge and suggests on the basis of physical manifestations of ritual, such as feasting on a grand scale, that such

knowledge may have just as significant as the exchange of tangible commodities (Mills 2002:87).

Meanwhile, during this period the region immediately surrounding Aztec was minimally occupied with a few scattered small pueblos. Morris recorded a few of these (Morris 1924b) and attributed them to the later Pueblo II period, but new pottery analysis indicates a slightly earlier period, contemporary with Chacoan origins. The bulk of the population in the Totah during this time was likely aggregated south of the San Juan Basin further to the west (Wheelbarger 2008). By the late 11th century, construction slowed drastically at Chaco, and the construction that did occur is classified as McElmo-style with blocky masonry and squared or rectangular layout, open plazas and no associated great kiva (Lekson 1984). Sites notable for their McElmo architecture include the Casa Chiquita, New Alto, Tsin Kletsin and Wijiji great houses.

Great houses (called outliers) with distinctive Chacoan architectural features, roads (all highly visible) and other tangible (as well, probably, as intangible) forms of Chaco expression had spread throughout the landscape by this time — at approximately 22 mile (46 km) intervals. These are elements of a large ritual landscape, which created an ideological realm (Wilcox 1999). Elaborate and complex geometries represented in alignments in the landscapes around Pueblo Bonito and Aztec suggest ritual movement and the embedding of meaning in the landscape. These included calendrical systems, alignments, pilgrimage sites and shrines (Stein and McKenna 1988; Stein and Lekson 1992). Thus by 1120 Chaco's reach extended far beyond the confines of the Canyon's walls.

Rise of Aztec (1100-1150)

The dissolution of the Chaco system in the middle part of the 12th century initiated a series of regional political, economic and social transformations that most archaeologists feel we have yet to explain sufficiently. The key players in this transformation were Chaco Canyon and Aztec Ruins. When the influence of Chaco and its regional system declined in the first half of the 1100s, its political and ideological core relocated to the Aztec complex in the Middle San Juan (MSJ) region. With this shift in the location of Chacoan-based power and authority, the region surrounding Aztec (and immediately to its north and west) became an important locus of social, ritual, and political power. Indeed Aztec became the center of the Southwestern world during the 1100s and 1200s. Aztec was built to mirror Chaco Canyon's core cityscape and was placed as an anchor at the north end of the Great North Road, the road that physically symbolizes a historical connection between the two centers and whose place on the landscape was selected to conform to a large-scale sacred geometry.

By the end of the 1000s, areas around Aztec were already under construction. It seems likely that construction of an adobe-based Aztec North began sometime during these decades, as did construction of four rooms and a kiva (L) that would make up the central-north wing of Aztec West. Tree-ring dates also indicate the possibility of early construction of portions of the Hubbard tri-wall (Brown et al. 2008; Lekson 1984; Vivian 1959; Windes 2010). Although no clear cutting dates have been recovered, it is likely that portions of Mound F, the Great North Road through Aztec, and portions of Aztec East were also begun between 1100 and 1130 (Brown et al. 2008:234). It was during this

period that Aztec West was built, in two or three major episodes of construction (Brown et al. 2008).

Aztec (1150-1280)

By the early part of the 12th century, the footprint of Aztec West, which consisted of approximately 270 rooms and at least 18 kivas, had been completed (Brown et al. 2008). By the end of the century, massive construction efforts had begun at Aztec East, and between 30 and 40 “small” sites were probably built and occupied during this time on the mesa top to the northeast (Stein and McKenna 1988). Morris speculated — on the basis of masonry styles, burials and pottery types — that Aztec was initially built and settled by Chacoans from Chaco Canyon. He inferred their presence on the basis of Chaco B/w pottery, round-headed and bundled burials, tabular core-and-veneer masonry, and kiva features that included radial-beam pilasters. During excavation of nearly 170 rooms at Aztec, Morris identified a hiatus period that he identified by natural fill/alluvial layers of soil that accumulated in some rooms. He explained this as an abandonment of the area by the Chacoans and an intrusion by Mesa Verde people who probably had originated to the north. This phenomenon, coupled with a shift in material culture such as the adoption of Mesa Verde B/w style pottery, semi-flexed or supine long-headed burials, kiva architecture and “derivative” masonry that included McElmo style tabular construction and the use of river cobbles, indicated to Morris that a new group of people had moved into the vacant buildings.

The National Park Service [had] adopted a theme for Aztec of the dynamics of the cultural contact between Chacoans and Mesa Verdians, functioning because of the site's intermediate geographical location between the two focal areas and the continuity through time of the fundamental cultural content. This was demonstrated through pottery, architecture, trade, and possibly also through intermarriage and sociological intrusions (Lister and Lister 1990:172-173).

Chief Intermountain Park Archaeologist Erik Reed was one of the first to question this interpretation (Reed 1954, CUMNH). He speculated that the shift in material culture was simply a natural evolution of the cultures of the time, and the NPS should cease to interpret the site as having a hiatus period.

In the final years of his life, Morris vigorously defended his interpretation against challenges by Reed and other researchers in (Morris 1954). He was successful: despite these challenges, Morris's original interpretation remained the generally accepted narrative for Aztec (Lister and Lister 1990). Recently, however, revisions to the model are gaining traction — particularly in relation to Morris's hiatus theory. Brown et al. (2008), for example, argue that there was an intermediate phase that may have represented a slow-down in construction or minimal occupation. During this time period Aztec West was heavily remodeled, indicating continuous occupation, while construction on Aztec East began in a manner described as “piecemeal” (Brown et al. 2008:12).

At the same time, outlier communities in both the Northern San Juan (Mesa Verde) and Cibola regions to the north and south, respectively, were growing in number and scale. Indeed, more than 25 great houses in the north and at least seven in the south have securely dated tree-rings that indicate construction (probably initial

construction) during this period (CRA 2015). Aztec itself was to some degree carrying out traditions in material culture that were first seen in Chaco. These included the importation of some turquoise (Morris 1928:273, 286, 305, 309, 338, 343, 352, 361, 408), the presence of two macaws (Morris 1928:352, 365) and copper bells that originated in Mesoamerica. It also included building room-wide platforms and tri-walled structures, as well as developing road and landscape features (that included an enigmatic construction to the south of Aztec West), and the overall form, footprint and construction style of a building(s) that would have been at home in Chaco Canyon.

One argument that explains the origin of outliers such as Aztec posits that Chaco dispatched ritual leaders, missionaries or ideologues to the frontiers to convert and recruit indigenous populations (Frisbie 1985). According to this interpretation, the great houses of the outliers, serving primarily as residences of such missionaries, acquired ritual authority by mimicking the style of those in Chaco Canyon. Alternative models (Van Dyke 1999) suggest emulation of the Chacoan core by the region's residents.

There are a number of arguments about the extension and form of Chaco's "edges" in modern studies (Mills 2002:68, Kantner and Mahoney 2000). Some suggest that models of redistribution no longer applied to the larger regional system, but rather there was a shift to consumption as part of organized ritual. In these new interpretations, feasts maintained equilibrium amongst outliers (as can be demonstrated at places like Bluff, Porter, and Wallace). Feasting might also accommodate pilgrims, reify ideological leadership, and substitute for voluntary

participation in the Chacoan system (Cameron 2009) — sometimes via coercion by an elite (Glowacki 2015).

The extent of Chacoan control in geographical and behavioral terms is still contentiously debated — partly because so few outliers have been excavated. Those that have been indicate that often great houses, great kivas and roads become sparser and more morphologically distinct with distance from the Chaco core (Kantner and Mahoney 1999; Van Dyke 2007). This last pattern is the chief argument *against* an integrated regional system: namely that the Chacoan core lacked direct control in the construction of outliers, which therefore manifested differently in different regions. This in turn suggests outliers were not populated by Chacoans and that it was rather the spread of ideas, not people, which accounts for structural similarities among outliers and between outliers and Chaco Canyon. Thus to understand Aztec it is essential to understand the ideas that underlay the ideologies and practices of Chaco.

II. Current Scholarship on Chacoan Studies

Chacoan archaeology has recently been synthesized in a capstone volume that compiles the various issues addressed by scholars over the past decade (Lekson 2006). These include questions concerning origins, ecology and economy, architecture, and the broader Chacoan world (900-1140). It is perhaps not surprising, however, that senior scholars (Judge 1989; Lekson 2009; Lipe 2002; Sebastian 1992; Vivian 1991; Wills 2009; Windes 1987) have not reached a clear consensus on many points concerning Chaco, nor on Aztec's role in the post-Chacoan world (c. 1140-1280). Indeed, the archaeological

literature concerning the northern Southwest is vast, with widely varying opinions, and even that literature concerning Chaco alone is “way beyond daunting” (Sebastian 2006:393). Perhaps because of this, it is rare — if not entirely unheard of (Lekson 2015) — for modern researchers to generate interpretive syntheses of major Chacoan sites, or as in the case of Aztec, localities of multiple sites. Rather than publishing synthetic works of the entire regional system, scholars have in general produced detailed or specialized studies.

The interpretation of Aztec Ruins has benefited from new research using the most advanced methodologies. Thus recent studies have examined tree ring data, perishables, pottery, and architectural style, as well as employing remote sensing and regional site survey (Brown et al. 2008; McKenna n.d.; Brown and Paddock 2011; Lekson 2004; Reed, Webster and Reed 2005; Webster 2009; Schwegman 2007; Stein and McKenna 1988). Much work of this nature has been carried out under the auspices of the National Park Service, thus without producing published reports attributable to particular archaeologists.

The various interpretations of Aztec's role in the larger region have been best summarized by Cameron (2005). Functions ascribed to Aztec have included a Chacoan colony, a local result of Chacoan emulation, and a palace of similar size to the Chaco Bonito complex that may have served to maintain regional order. The connection to Chaco is important: Chaco has been described as a place of high devotional expression, where the “secular and domestic economy was built for visitors, the political order was of a chiefdom, and the economy was based around pilgrimage” (Renfrew 2001:18). This

may have worked for Chaco and, by extension, Aztec. Thus Aztec, too, has been called a central place for ritual gathering where leaders might legitimate their power.

Aztec may provide an excellent laboratory both for analysis of open-ended questions related to Chaco and for new insights into its own historical trajectory. Kantner and Mahoney (2000) and Stein and Lekson (1992) initiated the examination of outliers as reflective (by degree) of a greater Chaco Regional Organization. Their work focused on sites with clear temporal connections to Chaco, however, and as Foucault has demonstrated it is research *outside* the Canyon that will provide the clearest insights.

As other studies have shown, in addition to being situated outside Chaco Canyon proper, Aztec was not a contemporary outlier. Stein and Lekson (1992), Lekson (1999, 2007, 2009), Reed (2008, 2011a) and Van Dyke (2007a) have all effectively demonstrated that Aztec was the pre-eminent Chacoan capital of the late 12th and early 13th centuries. Early explanations of Chacoan political organization as it related to supra-canyon management hinged on interpretations that assumed linkages between leadership, centralization and hierarchy. These perceived linkages were the intellectual legacy of earlier neo-evolutionary typologies, as well as the many ethnographic descriptions of Pueblos characterizing them as autonomous, egalitarian societies. Hierarchy, marked social stratification and ranked society were often seen as types of political and social organization that were adopted by (or foisted upon) Pueblo peoples after colonization. In contrast to this approach dominated by colonializing thought, it

seems, 21st century archaeologists have taken up the challenge of explaining hierarchy, complexity, agency and the trajectory (history) of ideology and power over time.

This trend in thought is not without dissenters. Wills (2000) takes exception to the idea of a politically complex, ritually-charged Chacoan power structure. He argues several things that pertain at Chaco (and by extension at Aztec). Most importantly, 1) ceremonial goods are relatively rare and are found largely (or only) at Pueblo Bonito; 2) modern notions of political authority grounded in ritual specialists depend on structural ethnographic analogies with modern pueblos. Against this interpretation is the key recognition that ritual specialists who can marshal large labor pools are rare in modern pueblo society and tend to manage in times of scarcity as opposed to surplus. Wills (2009; see also Kantner 2000; Van Dyke 2007a) believes that the key to understanding complexity rests with labor. That is, labor is pivotal to leadership, which would have revolved around the construction of non-ritual architecture on an annual basis. Presence of supra-household leadership is evident in the scale of construction units and the degree of advanced planning required. If the low Canyon population estimates are accurate (Vivian 1991), then the labor to construct such buildings would have had to have been drawn from beyond the residential population. Wills suggests cooperative leadership was organized at the lineage or residential group level in order to pool extra-canyon labor organization (Wills 2000).

New data are helping to flesh out questions that will direct future research. Some archaeologists view intraregional interaction during the late 1100s and 1200s as dependent on Aztec being the dominant political and ritual power in the region,

whereas others view community centers (other great houses) as the primary organizational basis that structured intraregional interaction. In this model Aztec was only one of *many* “centers” in the region.

The new methods employed by Chaco Project archaeologists, including aerial photography, remote sensing, archaeomagnetic dating, intensive climate studies and refined dendrochronological data, greatly increased the amount of information available and the complexity of interpretations possible. New data have allowed for the reconstruction of a comprehensive history for the entire Canyon and its surrounding area (Lekson 2006). Chaco Project archaeologists learned a great deal that earlier archaeology had missed: there were shifting settlement patterns and construction cycles that related to climatic fluctuations; some sites were probably constructed with line-of-site and astronomical alignments in mind; sophisticated water control features indicated that the valley was more sustainable and self sufficient than previously thought, and occupation of the Chaco region extended from 8000 BC through the historic period (Mills, 2002).

In general, trends in recent research at Chaco have moved beyond arguing over the presence/absence of complexity (Mills 2002:77). Instead, research now focuses on how political, economic, ritual and social organizations were structured. Many scholars who work at Chaco today examine the historical trajectory that led to its construction and subsequent spread of great houses throughout the northern Southwest from the 10th through the 12th centuries. What is hotly debated — and central to understanding Aztec's roots — is whether Chaco, its regional outliers and its progeny grew out of a

centralized socio-political-ritual organization which was a key factor in its physical manifestations across the regional landscape.

New research since the major undertaking of the Chaco Project has diminished significantly, but several small projects have kept the data rolling in. These include a wood coring project at Pueblo del Arroyo and Pueblo Bonito (Windes 1987), a survey of outlying Chaco communities (Van Dyke 1999), several CRM projects related to road construction and pipelines in the park, a re-excavation of three trenches excavated by Judd in the 1930s adjacent to Pueblo Bonito (Wills 2001; Crown 2016), and careful new excavations of a room at Bonito (Crown, in press). Chaco archaeologists in recent years have by and large focused their work on the surrounding San Juan basin or on reinterpretations of old excavations (Mills 2002:70), rather than on extensive new excavations within the Canyon itself. Even excavations conducted by archaeologists of the Chaco Project during the late 1970s and early 1980s targeted a number of small sites that represented each stage in Chacoan history, to understand interactions between Chaco and its outliers. These included Pueblo Alto and several small sites in Marcia's Rincon on the south side of the Chaco wash (Windes 1993). The Chaco Project has been assiduous about reporting and synthesis (Mills 2002). For a variety of reasons, trends within the Park Service now emphasize preservation over excavation or other destructive research methods.

Some have attempted to blend elements of these various proposals in a single scenario. For example, a recent study by Reed et al. (2011), *Chacoan Expansion or Emulation of the Chacoan System? The Emergence of Aztec, Salmon, and Other Great*

House Communities in the Middle San Juan, examines architecture, settlement patterns, pottery and perishable objects to interpret Chaco's role in the region and the reasons that Aztec (and other Middle San Juan sites) rose precisely at the moment Chaco waned. He suggests Aztec demonstrates production patterns that include both local and non-local goods and architectural traditions. This may have resulted from multiple waves of Chacoan migrants entering the Middle San Juan from 1080 through 1140. Such an influx inspired local emulation of imported patterns and a series of constructions by locally indigenous groups that sought to re-create Chacoan style. This phenomenon is described by the authors in terms of “meta-identity” as locals were gradually converted and/or won over by the Chacoan immigrants (cf. Wills 2009; Lekson 2009, 2015).

What Chacoan studies lack, however, are new and fresh excavation data. There are nearly 200 great house sites. Of these, approximately two dozen have been scientifically excavated. The most substantial work at significant Chacoan centers (the Canyon itself, Aztec, Chimney Rock, Lowry, Far View) was completed many decades ago. “New” work with an emphasis on preservation/conservation has been undertaken at great houses such as Aztec, Pueblo Alto, Una Vida, Bluff, Albert Porter, and the Red Mesa Valley over the past 40 years (Lekson 1983; Vivian 1991; Van Dyke 1999; Kantner and Mahoney 2000; Ryan 2015). But for a variety of reasons, while research continues at Chacoan great houses, large-scale excavation projects are relatively rare, with the exception of multi-room and kiva excavations at Albert Porter Pueblo (Ryan 2015) and the Bluff Great House (Cameron 2009). The primary reason for the conservation emphasis in recent Chacoan archaeology is found in the arguments spelled out in Lipe

(1974), which have been adopted as a model for many subsequent projects and which form the core mission of excavation for many University, non-profit, and National Park Service preservation policies. In the absence of modern large-scale projects at Chaco or Chacoan sites, however, archaeologists have had success in re-evaluating old data — with significant new insights into Chacoan prehistory e.g., Webster 2006; Durand 2005).

The most recent, and I would argue the most critical, question related to Chacoan studies is the explanation of political organization — and the debate over the diversity of trajectories that can be traced in political organization. Chacoan scholars (and by association, Aztec scholars) have tackled this issue in a number of ways. Sebastian (1992) asks how leaders achieved and maintained authority, and attributes their success to a competitive leadership model that was financed by surplus production. Lekson et al. (1988) and Judge (1989) thought that Chaco was a relatively empty ceremonial center that received periodic influxes of population from the surrounding basin. Those in charge benefitted through the control of rare resources (Cameron and Toll 2001) and esoteric knowledge (Helms 1988), as opposed to economic power. Most other models see Chaco leadership as centered in ritual authority much like ethnographic accounts of modern Pueblo peoples. LeBlanc (1999) and Wilcox (1999) envisioned Chaco as a complex centralized political system that was very state-like. In this model, great houses were elite residences for those with the ability to wield economic and military power, who may have organized standing armies that extracted tribute from surrounding communities. Later, Lekson (1999, 2009) embraced the Chaco-as-state model in which inhabitants of Chaco exhibited a highly hierarchical leadership

system and regional hegemony despite a low population, with differential authority and influence on Chacoan outliers.

Debates rage around the nature of the regional organization at Chaco, its dissolution in the mid-1100s and the possible continuation of a “reorganized” Chaco Regional system that was centered at Aztec. Theories of political succession (Lekson 1999, 2006), peer polities, northern in-migration (Wills 2009), emulation (Vivian 1991; Reed 2004; Sebastian 1992), peer-polity (Wilcox 1999), and “outposts” (LeBlanc 1999) have all been postulated. The history of Aztec and Chaco Canyon may have involved some or all of: social interaction, migration and resettlement, conflict, and the exchange of goods and ideas (Cameron 2005; Lipe 2006; Wilshusen 2006). Modern consensus is limited. Effective assessment of these broader anthropological questions has often been stymied by absence of a synthetic assessment of Aztec.

Kintigh's (2003) evaluation of the Chaco Regional System summarizes the chief problems that archaeology still needs to address, and that must have an impact on any study of Aztec Ruins. These include 1) What are Chacoan architectural complexes; 2) What are the functions of Great Houses; 3) How are surrounding settlement clusters integrated into great house (Chacoan) communities; 4) What is the degree and type of regional interaction (“systemness”) and how is this identified? Moreover, there is but little agreement on the application of key concepts, let alone a spatial/time frame, and no two authors seem to agree upon a definition of a Chacoan system. This last includes categorizing Chaco as a political entity, a religious movement, a redistribution center, a great house, and more.

What most *do* agree upon is that the size and importance of Chaco Canyon waned, possibly from drought stress, c. 1130-1180 (Vivian et al. 2006:63). During this time, construction of great houses at Chaco ceased, occupation of the Canyon declined precipitously, and political power as well as much of the population shifted north 80 km to settlements on the San Juan River (Judge 1989:247, 2004; Judge and Cordell 2006:205; Lekson 1999; Reed 2008:383; Sebastian 1992:131–132, 1992:135–138, 2006; Vivian et al. 2006; Vivian 1991:483). Occupation of the Canyon did continue, but on a reduced scale, and by the end of the 12th century the area was largely depopulated (Lekson and Cameron 1995; Tainter 1990).

Chapter 3: Data and Methods

A good methods section will give readers a sense of what was examined, how it was examined, and where it is currently located. A good methods section, however we construct it, offers us details regarding the circumstances of the research and pulls back the curtain on work done. It lets us see the man behind the curtain, so to speak. It is a pedagogical model...to familiarize ourselves with how to “do” histories (L'Eplattenier¹ 2009:71-72).

I. Data Location

Data collected by Morris from Aztec can be found in five repositories. The vast majority of the data are found in New York and Boulder. (**Appendix 1**)

CUMNH	University of Colorado Museum of Natural History (Boulder)
AMNH	American Museum of Natural History (New York) Special Collections Anthropology Section Library
AZRU	Aztec Ruins National Monument (Aztec)
WACC	Western Archaeological Conservation Center (Tucson)
Harper's Ferry	National Park Service Conservation Center (Harper's Ferry)

¹ Barbara L'Eplattenier is Professor of Rhetoric and Writing at the University of Arkansas, and author of *Working in the Archives* (forthcoming).

² For complete review of this distinction and a critical analysis of its application see Lister and Lister 1990 and Cameron 2005.

³ Aztec (Kiva B (Morris 1924a:146) Kiva S (1924a: 193) Kiva A.1 Annex (1924a: 204) Kiva A.5 (1924a:211) Kiva A.7 (1924a:211) Kiva D (1924a:212) Kiva G (1924a:213)

⁴ In most cases there is no way to be certain that some of the photographs were taken by Morris — those that were re-analyzed are from the time when Morris was either the direct or off-site supervisor of Aztec, but some of them may have been taken by other archaeologists, custodians or workmen (most likely George Boundey, Chester Markley, or Oley Owens).

⁵ It is curious how this skull come to be on a kiva floor (or possibly in fill), between 30 and 70 years before

II. Research Development

This project has three phases of research:

Phase I

- a. Locate, gather and organize historic photographs (approx. 2400) taken during excavations at Aztec Ruins by Earl Morris (1916-1922) from four repositories. (**Fig 3.1**)
- b. Locate, gather and organize unpublished data.
- c. Scan photographs and documents.
- d. Create photo key-word centered database in Aperture and Excel. (**Fig 3.2- 3.5**) Work to make photos available to the public and other researchers via the Chaco Digital Archive (cda.org), and provide copies of photos with metadata to CUMNH and AMNH for future research and dissemination on institutional websites.

Phase II

- a. Identify and analyze “new” (that is, unpublished) data from these sources. These may include unknown floor features, burials, architecture, surrounding sites, kiva data, and other unknown information.
- b. Analyze photographs for provenience data (there are no photo logs) and correlate with known excavation notes from Morris's publications.
- c. Create database of “new” *and* previously published information to develop a comprehensive database of site data at Room Level. Extrapolate this into new site-wide maps.
- d. Assign appropriate metadata (descriptions, provenience, additional information).
- e. Use database to plot these data to create new maps of Aztec West with location of burials, features, additional architectural details, etc.
- f. Select examples to illustrate possible outcomes of this method; one room (Room 139) and one kiva (Kiva D), as well as one clear methodological issue (mortuary practice) that has been understudied and which highlight key question about Aztec's function in the 13th century.

Phase III

- a. Utilize multimodal methodologies to create integrated, synthetic, spatial and chronological model of site development, occupation, use and abandonment of Aztec West and surrounds.
- b. Write new narrative history of data analysis, and from that extrapolate narrative history of the case studies and site-wide work.



alignment with the wall it was in -
 linked to a support, but somewhat diagonal
 to it, its foot being at the center of the
 wall under the door. The floor was
 covered with the double matting.
 The house was long and before the
 air was cut off from the outside
 in a circular way. Numerous coats of plaster
 were there, each a different color
 which were visible still in places.
 The masonry, it was made of stones
 laid in a row, as there were three coats of
 plaster, each one thicker, each one
 blackened by smoke.
 The foundation of the upper part was
 of 59 stones laid in a row. The house
 the other end of which was found
 below the top of the wall and the first
 course of stones.
 The floor was a very shallow excavation
 in the center of the house. The matting
 was laid on the floor and ran 2' high.
 The wall before coming into the shaft
 was 1.2' high and ended with a step.
 The house was a large rectangular
 room with a door.

174	142	141	197	200	199
191	147	144	126	198	203
192	180	181	143	201	203
193			139		
156					
157					

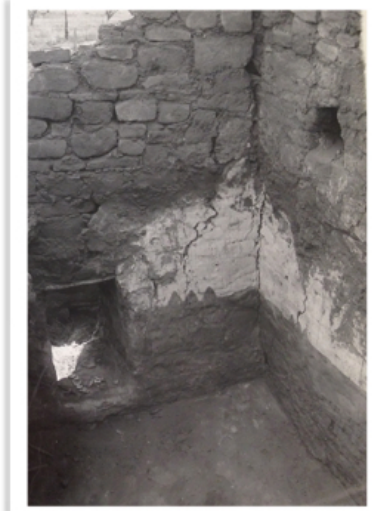
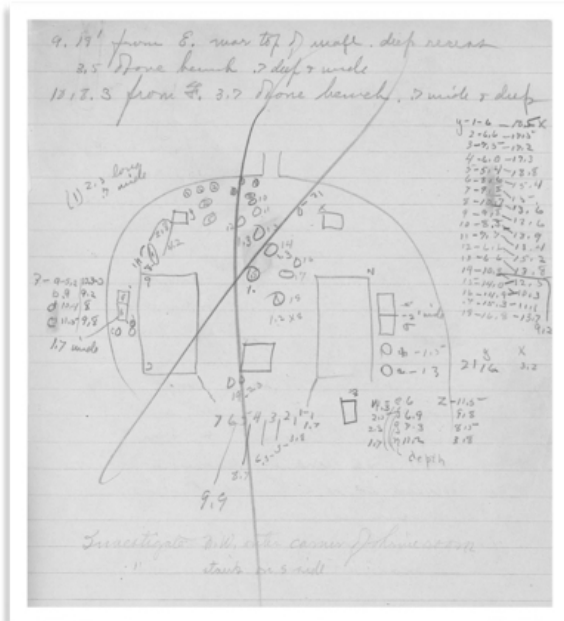


Fig 3.1: One of the storage facilities for the Morris materials at CUMN (tope left), and selected notes, maps, photos from the Morris collection.

III. The Data Collected and Assessed

The main body of data utilized in this analysis comes from a donation of Earl H. Morris's personal papers to the University of Colorado Museum of Natural History upon his death in 1956. The collection includes documents from much of Morris's adult life, from 1911-1956. Several dozen files contain primary documentation created or written by Morris during his fieldwork at Aztec from 1916-1922. These include photographs from field and laboratory contexts, maps, sketches, correspondence and field notebooks. With few exceptions (approximately 80 photographs out of approximately 1200 in the collection, and one of the maps), these data are unpublished. I have also included additional data from documents that fall outside the "Morris Era" at Aztec, as described in Chapter 1.

Even though Morris was not often directly responsible for collecting data from Aztec during this period (1926-1934), the data derive from a period when Morris was nominally in charge of the archaeological work at Aztec, even if not always present. During this time, work was largely carried out by employees of the city of Aztec, the American Museum of Natural History, the University of Colorado, and in some cases Morris's friends. In a few cases, data collected after 1934 have been included in my research to supplement the Morris and Morris-Era documents and photos. In these instances, they were used primarily with respect to select portions of the site examined here: Room 139, Kiva D, and a number of burials found in and around Aztec West.

Aerial	2
AMNH Library	385
▼ Artifacts	8
Burial	220
Burials	37
Ceramics	240
Lithics	21
Perishables	369
Plaster	68
Refuse	35
▼ Building Type	
Annex	3
Earl Morris House/Visitor's Center	8
Great Kiva	134
Kiva	188
Notable Architecture: Other	185
Room	423
Room 2+	20
Unknown Kiva	46
Unknown Room	159
Unknown Rooms	48
Unknown Space	63
West Ruin Overview	510
Camera/Video Camera	46
▼ Documents	
Architecture Details (Kiva)	94
Architecture Details (Room)	92
Artifact Inventory/Disposition	268
Bibliography/ Timeline	31
Budget/Financial Report	8
Burial details and/or photo	21
Dendro Data	35
Exhibit	16
General Work at Aztec	91
Internal NPS/Dept Interior	98
Maintenance	17
Map/Diagram	140
Newspaper Clipping	27
Research Proposal/Permission	34
Surrounding Site	34
Unpublished Manuscript/Report	122
▼ Notes (Photo Details)	1
Abutment	38
Adobe	22
Doorway	135
Excavation in Progress	530
Hearth	55
Other	5
Post 1930	255
Reconstructed	36
Reconstruction in Progress	122
Road	7
Roof/Floor	90
Wainscoting	6
► Other (not Aztec)	
▼ Other Buildings	
Annex	2
Aztec East	15
Hubbard	18

Fig 3.2: A partial listing of the “keywords” assigned as metadata to the photographs and documents scanned for this project. The numbers to the right are the times the keyword was assigned.

A second collection of Morris's papers is to be found in the Archives of the Department of Anthropology at the American Museum of Natural History in New York and covers 1916-1928, when Morris was an employee at AMNH. These documents largely pertain to the disposition of the artifacts sent to the museum for accessioning

and include administrative and budgetary items as well as approximately 50 photographs and some of the original drafts of maps from the field.

The Special Collections department at AMNH also curates a separate collection of Morris materials. This includes approximately 300 photographs of Aztec taken by Morris (and his field assistants) between 1915 and 1934 and a number of photographs taken in the museum of selected artifacts from the site. In general, it is not clear who the photographer was or when they were taken.

Finally, there is a scattering of Morris's correspondence on file with the National Park Service at Aztec Ruins National Monument, the Southwest Regional Office, and the National Archives. His eldest daughter, Elizabeth, who was also a prominent Southwestern archaeologist and his heir, retained no documents or field notes pertaining to Aztec Ruins.

In total, the primary source data for this research encompasses the following:

Photos	Morris: 1820 photographs Morris Era: 218 photographs
Maps	Morris: 12 maps (Kiva D, site overview) Morris Era: 3 maps
Sketches	Morris: 9 sketches (very likely attributable to Morris, but not absolutely certain) Morris Era: 17 sketches mostly related to projected excavation projects
Documents	441 letters between Morris and a variety of Park Service, AMNH staff, family members, workmen, etc. that include tidbits of excavation history, interpretations of artifacts and architecture not previously published, and additional details that help to flesh out how much of Aztec was excavated, analyzed and interpreted.

Additional 800 documents of various type (reports, newspaper clippings, etc.)

Notebooks 2 field notebooks, one ostensibly from Morris (though unattributed) and labeled “kiva notes” and another labeled “field notebook” that is attributable to George Boundey and was probably recorded in 1927/1928. There are a dozen other field notebooks at CUMNH that includes a catalog of artifacts (written in long hand); but transcriptions of these fragile books were used in my current research

Other Gray literature, Works Project Administration reports, administrative history of Aztec Ruins, popular newspaper and magazine articles, internal memos between Morris and CU Museum of Natural History staff

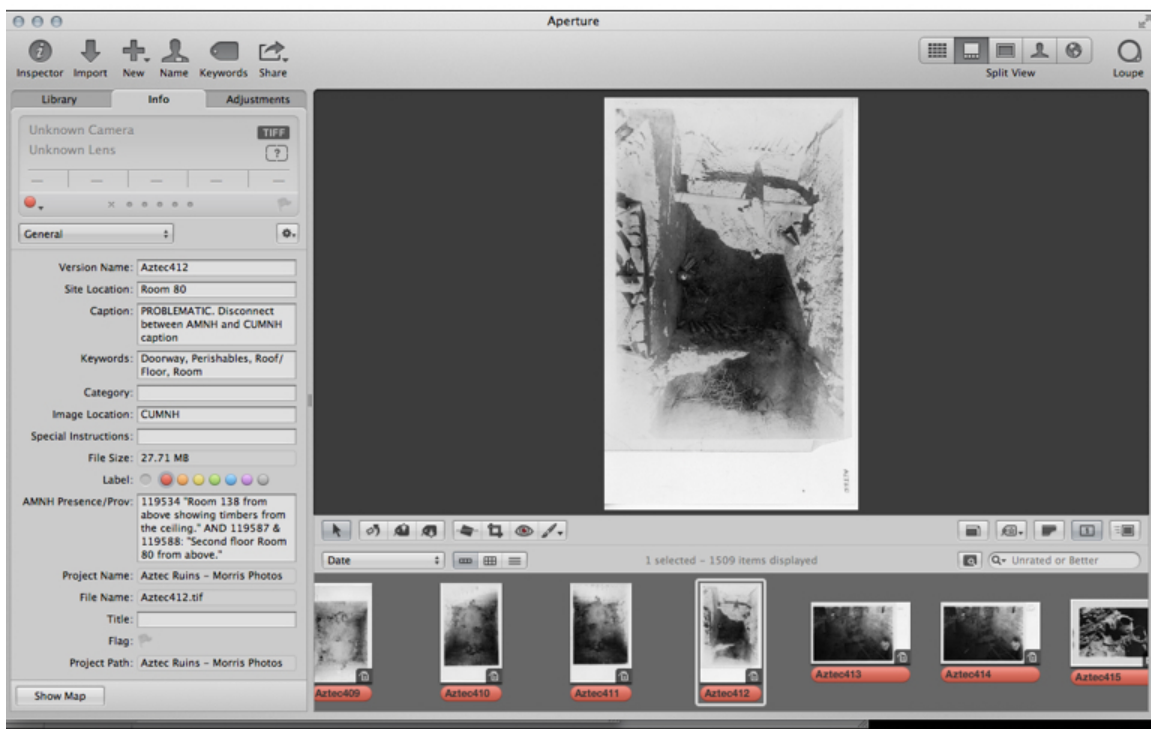


Fig 3.3: Photo 115919 from AMNH. No provenience. Likely Room 145. This is a screenshot from Aperture that illustrates how photo metadata are entered and stored with searchable fields.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	Room/Div	Story	Tree Rings	Wall/Mason	Doorways	Walls	Hearth	Bins/Pit	Other FF	Floors	Partition	Burials	Refuse	Fill Other	Artifacts	Plaster	Diagnostic P	Precincts	Floor assem	Subfloor	Burned/Unb	Excavated (Y Associated P Or	
2	Room 1	1											1.2, 3.4	15"-24"			No perishables, 2 bowls						
3	Room 2	1											5, 24"				Chaco refuse, 1.5 bushels of potsherds						
4	Room 3	1											zero				< gallon pottery					Indicators of trash	
5	Room 4	1											zero				gallon of sherds						
6	Room 5	1															Human effigy (B/W) Chaco *						
7	Room 6	1																				2 floors exposed below (seen in pit 1 foot 6")	
8	Room 85	1																					
9	Room 86	1																					

Table 3.4 (sample). Portion of excel spreadsheet that records data visible in Morris photographs.

IV. Problems with Data

In general, the collections of Morris's papers are disappointing in their lack of raw archaeological data in the form of field notes related to primary archaeological contexts. Wissler repeatedly urged Morris to deposit these records at the American Museum of Natural History, first because of the possibility of his being called to military service during WWI and later because of his prolonged absences while working in Mexico and in other parts of the Southwest. Apparently this was done only in a limited manner. The AMNH archives have one handwritten ledger containing the specimen catalogue — this provides a field specimen number, a concise description of the artifact, and provenience. Another handwritten notebook includes the materials that would be published seven years after Morris stopped digging at Aztec as “Room Notes on Excavations at the Aztec Ruin,” in *Anthropological Papers of the American Museum of Natural History* 26, pt. 5 (1928).





Source	Meta	Date	Author	Provenience	Published?	Evidence/Interpretation		
						Archaeological Evidence	Additional Data	Other
	AMNH #129286	1917	E.H.M	Unknown. West Wing?	No	Unidentified Burial, subfloor Niche, corner	Analysis: Child, 8-12. Flexed, 4 vessels	Mesa Verde B/W mug, Gallup B/W jar, unidentified perishables
	CUMNH #119656	1919	E.H.M	Room 156 (unlabeled. Mathed from notes)	Yes	Plaster (white/red), Southwest corner Niche, south wall Doorway, west wall	Possible evidence of pictograph inscribed	
	CUMNH_AR CHIVES477	1921	Oley Olsen	Unknown	No	Two additional sites northwest of Aztec. Additional burials found 150 yards northeast of northwest corner. Probable Chaco burial	5 individuals and associated grave goods	
	Aztec_Note booke_02	Unknown	George Boundey	Map, Northwest corner, West Wing	No	None	Re-numbered rooms associated with artifacts collected by G. Boundey, 1929	See associated notebook (AMNH #4547-4577)
Oral History/ Audio Recording	---	1956	Sherman Howe	Northwest corner rooms, looted in 1887.	No	Disposition of artifacts in Rooms 201, 192, 195, 188, 184, 180	13 lost burials	Perishable items possibly in possession of AZRU - from S. Howe gift in 1956.

Fig 3.5 A partial table that illustrates the coding process for the variety of modes of data available on Aztec. This table combines the data from the previous steps (keyword, etc) and offers additional, interpretive analysis, and assesses the strength of the data that explicate the analysis.

Other than three plan maps of West Ruin, there are no detailed notations, artifact descriptions, room measurements, or observations that might be considered traditional archaeological data. There are two possible reasons for this. One is that notes simply were not rigorously kept. Morris disliked this part of the process, a point substantiated by Talbot Hyde (AMNH affiliate and benefactor, and site photographer in 1917) and Morris's own lamentations later in life (Lister and Lister 1990; Hyde to Wissler, August 21, 1918, AMNH). Morris's first archaeological mentor, Edgar Hewett, instructed Morris as early as 1913 (during his undergraduate days) that “you cannot be

too explicit in the writing up of your notes. Our experience with almost every expedition is that much is omitted from the field notes on the supposition that it is so well understood that it will not be necessary to record it, and that subsequent preparation of papers almost certainly discloses large deficiencies” (CUMNH_ARCHIVES533). While there is a certain irony in this admonition by Hewett to keep detailed notes (Hewett kept few himself), Morris often followed his instructions and may actually have taken his orders to heart. In some form or fashion, Morris recorded some data about each of the rooms he excavated (and sometimes photographed), especially when he considered the room's contents particularly interesting (e.g., Kiva D — viz. Chapter 4). However, he did not often record precise information on burials, was not systematic about documenting architecture, features, or explorations into subfloor contexts, and rarely recorded lesser artifactual materials such as debitage, small bone or wood fragments, and potsherds. In the case of the latter, he often piled these into bushel baskets and measured them by volume. For the publications it appears Morris relied primarily on his memory and an obsessive involvement in his work to help him recall the necessary details (Lister and Lister 1990).

The second possible reason for the paucity of archaeological context descriptions is that some documents may have been lost over time. A full decade elapsed between Morris's last excavation at Aztec and the moment when he finally moved out of his house (the current Visitor's Center at the National Park). During this period, Park Service oral history indicates that his notes were packed away in the basement while the house was lived in by others and used as a temporary museum and fledgling visitor's center. By

1934, when he returned to begin the restoration of the Great Kiva, he found bags of cement taking up most of the basement and many of his stored possessions missing. These included important notes on the Aztec Ruin kivas, which he had planned to write up at some future point. It may be that, years later, he learned his possessions were inadvertently hauled to the dump (Lister and Lister 1990:260). He may not have accepted this story, however, because Morris was still sending appeals and queries to the Park Service as late as 1948 in an attempt to locate his lost notes — to no avail. Whatever the historical processes that impacted Morris and his work during his time at Aztec, the collection of available data found to date in the archives does not include traditional archaeological field notes.

V. New Approaches to Old Data

The bigger questions (posed in Chapter 1) about Chaco and the Post-Chaco period (particularly at Aztec) are being tackled by archaeologists using traditional methods of analysis. As reviewed before, these include analyses of architecture, artifact types, etc. (cf. Brown et al. 2008; Jolie and Webster 2015; L. Reed 2001; Webster 2009). To answer *different* questions (and to answer questions differently) we need new, good and plentiful data. Unfortunately, despite the abundance of great houses on the landscape, fewer than two dozen have been excavated, only three nearly completely and most at least 40-100 years ago (though there are a few notable exceptions discussed in Chapter 2). Consequently, archaeologists interested in new questions are relegated to non-destructive technologies like LiDAR (recently applied by Richard

Friedman of San Juan College, n.d. **Fig 1.10**) which now enables one of the most accurate maps of Aztec National Monument, on which the great houses and many small sites and isolated kivas are visible. Other remote sensing technologies applied at Aztec Ruins include exploration of Aztec North (Lekson 2004), re-excavation of areas previously excavated (like the re-excavation of Neil Judd's 1920s work at Pueblo Bonito by Crown and Wills [2015]), or re-analysis of archived work carried out by earlier archaeologists (Neitzel et al. 2003; Plog and Heitman 2010, etc). It is this last approach — the use of legacy data — that I argue is the richest untapped source of new information.

The primary issue with legacy data is *how* to use them effectively, because in many respects they do not conform to traditional, conventional, empirical archaeological data. As seen in the previous section, Morris's notes, while extensive, are highly irregular, scattered, and in many cases, difficult to interpret. A new approach to research at Aztec is necessary to take full advantage of the types of data involved, which come in varied formats (or “modes”), the process related to their acquisition, the inference and deductive logic involved in this progression of analysis, and to create final usable outcomes.

The process that makes these analyses possible is (relatively) straightforward: 1) gather multiple “modes” (e.g., *forms*) of data from Aztec that include old photographs, published works, letters, sketch maps, oral history, and field notebooks that have been hitherto underutilized; 2) assess these data with multimodal analytic techniques (inductive, grounded theory-based, cross-referenced); 3) transpose these data into

tables of analysis, keyword searchable and spatial/temporal maps and annotated photographs; and finally 4) use these data to address the questions described in Chapter 1 concerning occupation, status, architecture, abandonment, and micro-histories. The final analyses is best synthesized in micro-histories nested inside of larger site narrative histories.

The section below will briefly outline the procedures used to order the data. It will describe a variety of techniques, some of which have never been applied to archaeological problems, which describe how this project has approached and ordered different modes of data to extract usable information.

VI. Data Manipulation

Archives are “materials created or received by a person, family or organization, public or private, in the conduct of their affairs and preserved because of the enduring value contained in the information they contain or as evidence of the functions and responsibilities of their creator” (Pearce-Moses 2005). The materials considered in this dissertation include both primary and secondary sources, multiple interpretations and alternative viewpoints, and conflicting/confusing data. The materials in the archives for Aztec Ruins are complicated: they often have multiple proveniences or none, they may duplicate or contradict each other, and they display a baffling array of ordering systems that may (or may not) have been established by their creators.

It has therefore been necessary for me to compile significant metadata associated with each of the sources considered here. These include original location

within the archive, the original location of the subject (if it can be determined), original labeling, keyword association, historical interpretation and use, and assessment as to the veracity of the data. Beyond this basic metadata, it has been essential for me to tabulate exactly which photos and what interpretations were used by Morris (and others) to make assessments (e.g., the sex of an individual in a burial), and then to trace the accuracy of that statement to Morris's conclusions about Aztec. When, for instance, tree ring or burial data, etc., are demonstrably inaccurate, I have noted and these inaccuracies.

I spent several weeks in the various archives finding and reading everything associated with Morris's work at Aztec. There are 24+ linear feet of documents in the Morris archives at CUMNH and 16+ linear feet at AMNH. It was impossible and unnecessary to read everything in Morris' archives — much of which did not pertain to Aztec. I skimmed folders associated with the Bernheimer expeditions, Atahonez, Falls Creek (etc.), and skipped entirely those associated with Morris's work in Mesoamerica. I also generally ignored documents associated with his financial arrangements unless they also contained other useful archaeological information.

Once I identified those materials that would be most useful in a consideration of Aztec itself, I scanned 1169 documents at 96-300 dpi at CUMNH and an additional 766 documents and photos from AMNH. Resolution depended on the condition of the paper. Carbon paper copies often necessitated higher resolution in order to pick up extremely faint ink. I scanned the photographs in the files at 600 dpi. All files were scanned and saved as data loss-less tiff files. The result is that the files are quite large —

around 1.8 MB for documents, and 17-30 MB for photos. These I imported into Apple's Aperture, sorted, cropped, and oriented appropriately (many were flipped or reversed during processing). I recorded captions, assigned keywords, made initial interpretations, deciphered handwriting (in most cases), and assigned additional data, provenience and comments if possible or necessary. These metadata in turn I imported into an Excel spreadsheet for ease of use/searchability. In all, the metadata include:

Version Name: (e.g., CUMNH_0001-CUMNH_1169 inclusive, or AMNH_0001, or 116751 if original AMNH numbers are extant. AZRU if from Aztec Ruins, etc. There are often multiple versions of the same image. Thus, occasionally there are multiple images of the same subject, duplicate images in the same repository and duplicated images in more than one repository.

Image/Document Location: For example, EHM/002-C11.D1 #002, indicating a document that is from the Earl Halstead Morris Collection/File Drawer 1/Folder #002 etc.

Location: This includes macro-micro location, e.g., CUMNH Archives, Henderson Museum, Room 210, File cabinet #, Drawer #, Folder label, etc. These differ slightly between institutions, but the specific differences and "finding guides" are included in the appendices for institution.

Caption (if appropriate): This includes quotation marks " around captions or other original attribution, or a general note from me about the document's disposition, if the keywords (below) were not sufficient descriptor.

Keywords: This includes names of those associated with the documents, document type, general disposition, date, viewpoint, subject matter etc. This should make searching the archive more useful. A complete listing of key words assigned to the collection is included below. Also note that Keywords used for the Documents are the same used for the Morris Photos, which will make it easier to merge these two separate databases in the future.

Interpretation: When photographs were not labeled, damaged, mislabeled, or otherwise confusing, I provided interpretive information on the subject matter. "This appears to from a similar angle, of the same pot from Room XX, in which case, it is *likely* this photograph is of Room XX." Interpretations varied widely

between photograph and documents and often consisted of several pages of description and analysis.

VII. Strategies for Legacy Data

...with few exceptions...practical articles to orient and guide people to new archival research, articles that described the methods of historical research — didn't exist... The doing of history was rarely discussed (L'Eplattenier 2009:67).

The problems surrounding primary research methods and foci have been on archivists' minds for a decade or more. Indeed, the lack of practical training and training methods in proper archival research are regularly discussed in the field of Library Science (Ferreira-Buckley 1997; Enos 1999). The common theme is that archivists and historians (not to mention archaeologists) “need to incorporate more explicit discussions of our primary research methods into historical research” (L'Eplattenier 2009:68). They also need deeper and more overt discussions concerning necessary disciplinary tools as well as “a systematic method of gathering evidence” (Kirsch and Sullivan 1992).

'Methods', as Kirsch and Sullivan note, means something very different than *methodology*. Vitally important to the development and construction of any research project, methods are the means by which we conduct our research, how we locate primary materials, and for historians, how we recover materials for our histories. Methods are about achieving access to information, about finding aids, about reference materials, about archive locations and restrictions, about the conditions of the materials, about the existence of evidence or the lack of evidence, and about the triangulation of information — all the factors that impact our 'systematic gathering of evidence' and our interpretation of that evidence, our presentation of our revisionist histories (à la Miller). Just as methodology allows us to theorize the goals of our research, methods allow us to contextualize the research process or the researched subject and materials. Methods make the invisible work of historical research visible (L'Eplattenier 2009:69).

Traditional applications of hypothesis testing and problem-oriented research are not entirely appropriate or possible given the restrictive nature of the available information. Conversely, neither should this process be related to serendipity, or be relegated to unsystematic “as-it-was” scenarios (Plog 2015:12) that are inherently unscientific. The question then remains — is it possible to do good, scientific, logical, problem-oriented archaeological research with data that are not good, unsystematic, widely interpretable, lack basic provenience, and which were gathered and interpreted in the modalities and broad theoretical viewpoints held by archaeologists nearly a century ago? This dissertation set out to test this methodological approach.

In order to determine whether legacy data are usable, it is essential first to develop new methods of systematizing the available data. In this process, it is necessary to re-order the scientific method. In such a case, that order must be 1) Data Collection (or perhaps more appropriately, Data Assembly), 2) Data Analysis (systematic, multimodal), 3) Question, 4) Hypothesis, 5) Re-analysis and 6) Summative Argument. This is not ideal, but it does allow for legacy data to influence (if not drive) hypothesis testing, and to use the data available to structure and record forensics, enable thick description, and result in logical interpretive analyses. This ordering of the process skirts traditional methods of archaeological interpretation, but does not abandon them. It is the final outcome — in this case which results in the interpretive, *narrative, historical* approach to the data — that requires and embraces new methods of archaeological interpretation. Such data do not lend themselves to traditional archaeological narratives; rather the bouncing back and forth between data, collection of data, and

interpretation of data strength requires a logical progression of storytelling: “how did I make that inference to arrive at that particular outcome.”

Kirsch and Rohan's (2008) *Beyond the Archives* looks at the unsystematic and often sloppy methods involved in archival work, but it also laments the fact that systematic archival research is not a focus of serious researchers, who (the work suggests) are often more comfortably reliant on quantitative analysis or micro-analyses than attempting to incorporate a whole body of available data. Indeed, it is ironic that in *Small Worlds: Method, Meaning and Narrative in Microhistory* (Walton et al, 2010) there is not a single mention of method beyond that in the title — this, in a collection of chapters wherein the archaeologists and historians explore case studies in archival and archaeological data. This is truly a gap in knowledge, and one that needs to be remedied if archaeologists are to be able productively to use data collected in archives.

To approach the guiding questions related to great house function, kiva function and mortuary data, and to develop a method that enables the use of legacy data as well as that acquired through new archaeological exploration, is essential. Such a method must allow for systematic data acquisition and relatively systematic post-acquisition analysis. Perhaps just as importantly, these pathways towards assessment must be unambiguous and repeatable. It is essential that any system dealing with such evidence must be able to incorporate and interpret vast and unstructured kinds and amounts of data. This dissertation creates such a structure of systematic analysis with the outcome in mind of creating a plausible narrative of information. It develops an organizational structure designed to reduce McClellan's (2005:1) serendipity factor — a researcher's

tendency to pursue and focus on data that possess attractive characteristics (e.g., clarity, provenience, volume of information, or apparent interest/'wow' factor) that might overshadow other lines of evidence or inquiry. The outcome of such an approach is qualitative in nature, with relatively little in the way of the typical quantitative analysis possible in instances of systematic original project organization. This project incorporates methods adapted from forensic photography, Multimodal analysis, Grounded Theory, and Microhistory — methods adopted and adapted from the fields of Criminal Justice, Psychology, Education, Linguistics, History and Classics — in order to test new approaches to reconstruct Aztec's history.

Archaeological Photography

The primary tool of photographic analysis in the process I have used in this dissertation is *forensic photography* — a term I have generated for lack of a more effective description — and which has not been applied to non-aerial archaeological contexts before my current research. Forensics is defined as 'the collection, preservation and analysis of scientific evidence which is then applied, in this case, to historical photographs and documents. In practice, this involves intensive examination of a single photograph for minute details. This exercise involves blowing up the high-resolution scans of historical photographs on a 32" monitor to 800% of original size and moving point by point through the photograph in order to catalog salient visible details. In some cases, this has also involved the use of PhotoShop in order to lighten, sharpen, or highlight details that might be obscured (see **Fig 3.6** for example of notations of this process).

How does one date and contextualize a photograph of a room taken somewhere in Aztec, sometime during Morris's excavation project, when there is no photolog or other identifying markers? Room-level context is usually the most descriptive indication of location given in Morris's publications (descriptions, artifacts, etc. were often grouped at the room level and as such a room is often the basic unit of analysis). Thus,

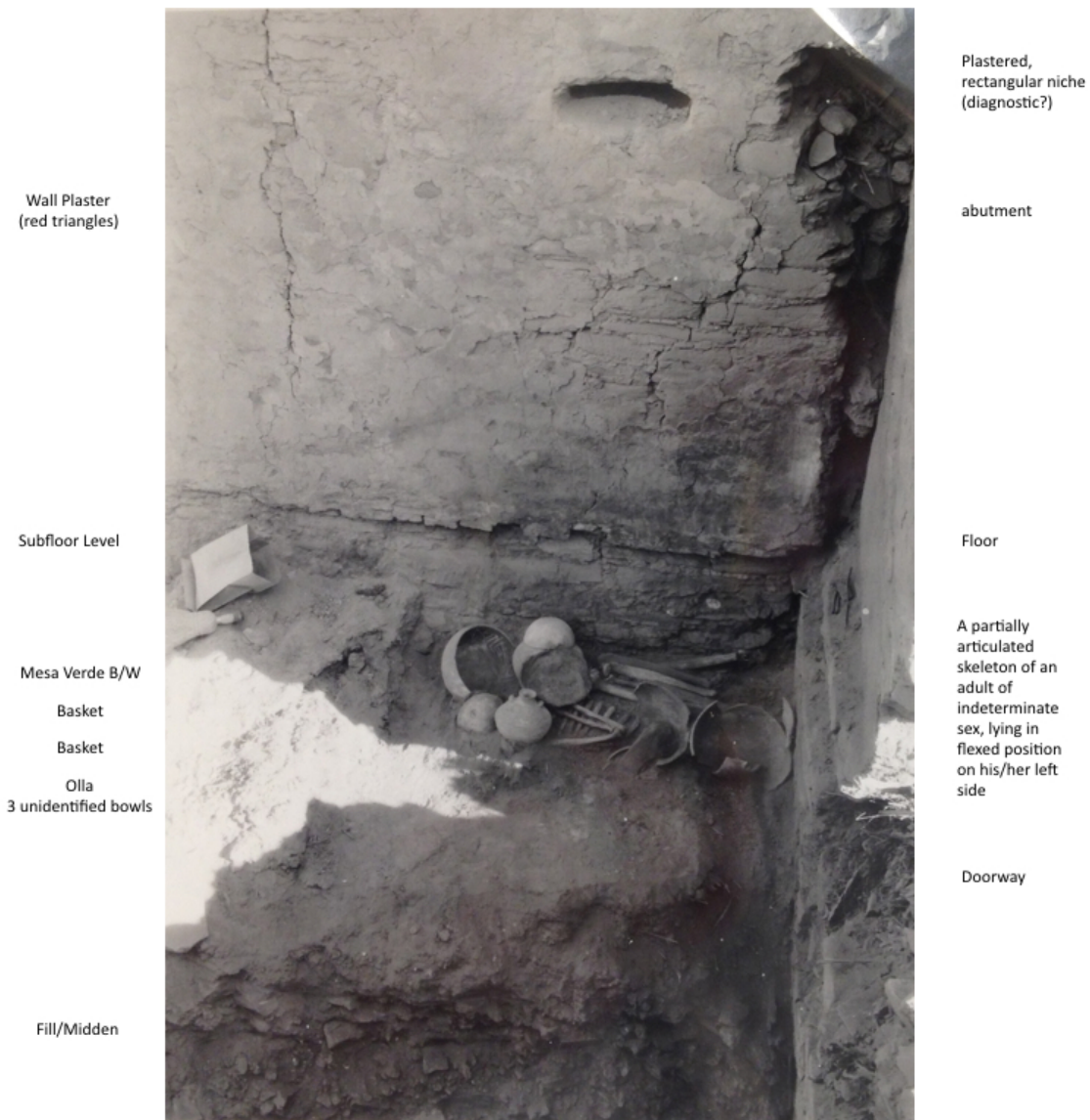


Fig 3.6: Photo 129286 from AMNH. No data recorded. Example of applied Coding in multi-modal analysis.

identification of a room in a photograph, with supplemental data on artifacts, burials, fill, architecture, etc., provides fundamental and usable data points of analysis that are qualitative, quantitative and interpretable. Here is an example from a single photograph (**Fig 3.7**) to illustrate how forensic photography might be applied:

Is possible to identify the workmen in the photo by comparing them to other captioned photographs (for instance Ann Axtell Morris's *Digging in the Southwest*)? If they can be identified, it may be possible to cross-reference pay stubs and dates to know *when* they may have worked on the project. If I can identify the workmen and when they might have been on-site, it is then possible to correlate that date with the area of the site that Morris focused on during that particular month and that particular year (based upon his correspondence with AMNH). From that information I can narrow the photograph to a few probable options, and identify the room by matching the masonry with more recent photos of the same room. From there, it may be possible to assess the burial or any other features in the room, and add this information to the compendium of data associated with Aztec (in the case of this photograph, in Room 145, a lost room, two floor features, and an unknown child's burial that had not been recorded before). Thus, it may be possible to link a photograph to a room through analysis, questioning, comparative data, cross-referencing with other data sources, and looking beyond traditional methods. As mentioned, rooms (or kivas) form the basic provenience for data from Aztec, the basic spatial unit of analysis for Morris all subsequent researchers. Thus, placing lost photographs back onto the site and plotting the rooms they show are essential for new data development.



Fig 3.7: Photo 119517 from AMNH. Unknown location.

This process does not conform to traditional archaeological methods. In the case of the photo described above, the skeleton is long-missing. There are no associated artifacts. The room is only matched through a tenuous paper trail, photographic identification of bearded men in hats, and masonry that has been heavily stabilized in a room that is now partially backfilled. In many other instances of unprovenanced photos, this process failed to bear fruit. Nevertheless, by explicitly tracing and standardizing the sequence of steps necessary to identify photos, interpret non-traditional data, and then make information-grounded inferences, I have found it possible to make tentative assertions using site information that was previously overlooked — or unavailable.

The seemingly haphazard system applied to the orphaned photograph discussed above seems to me the only logical interpretive approach, no matter how labor-intensive. I therefore repeated it systematically across the thousands of unexamined documents and photographs available to compile enormous amounts of new information from Aztec. Thus, data and metadata were applied to all of the available photos, but it was the questions outlined by Sebastian (2006) above that framed the primary thrust of archaeological inquiry I have developed here.

It is thus photographs and photography that have chiefly driven my new research into old discoveries at Aztec. This is possible because of Morris's own dedicated use of photography as an archaeological tool. Indeed, archaeological photography has almost as long a history as photography itself, and an examination of its first century of archaeological application is appropriate to contextualize Morris's perceptions of exactly how archaeologists were utilizing this new medium for research.

Archaeological photography got its start in antiquarian expeditions to Egypt, Assyria and Greece. European scholars first identified photography's usefulness as an objective means to counter the subjectivity of hand-drawings, and to bolster efficiency — particularly to record *in situ* hieroglyphs and cuneiform (Salzmann 1856:118). Air photography first began with surplus war balloons at Stonehenge in 1906 and expanded across the British Isles with the Ordnance Surveys. “The comprehensive view obtained from the air aids the perception of significant pattern and appreciation of relationships between one feature and another” (Wilson 1982:16). World War I enhanced and refined this practice as RAF pilots photographed landscapes for intelligence purposes. German

pilots went so far as to record archaeological sites during the war; this created a phalanx of airmen interested in archaeological data after the war's end (Wilson 1982:10). The first application of aerial photography to understanding landscapes in prehistory was identified by Crawford in his application of aerial data in Wessex, which traced invisible earthworks across broad reaches of a prehistoric system of Celtic fields (Crawford and Keiller 1925). Later archaeologists, mostly British, imbue these historic photographs with the same interpretive potential as artifacts. "Even when photographs are acknowledged as artifacts, they may also take on something of the status of found objects, harnessing the magic of the real" (Shanks 1997:80). Most historical archaeologists agree that "the photograph does not just passively document, but argues for an interpretive position" (Bohrer 2005:181-182). As Bohrer points out further, "Looking through an archaeologist's eyes provides significant details, but only for the sensibility already attuned to the site as a whole. This photographic documentation is thus highly selective, anything but a stand-in for the site" (Bohrer 2011:119).

A key issue of relevance for this project is the re-use of primary photographs. Photographic sources are often a double-edged sword: while they may provide clarity or insight into an overlooked element of the past, they may also introduce confusion or call into question previous conclusions. For instance, in preliminary examination of Morris's photographs, there are tantalizing examples that show the presence of undocumented burials, floor features, and in-situ artifacts, but as they have no associated provenience and none can be determined, the features recorded in these photographs remain orphan data.

Morris had few immediate contemporaries who used photographs as part of the documentary history of site excavation. However, others did follow on his heels and took systematic advantage of photography to document finds and architecture. These included Judd (1964) who documented his work at Chaco, primarily at Pueblo Bonito, from 1922-1927, and Smith (1952a) who utilized photographs taken during the excavation of Awatovi from 1936-1939. He re-analyzed these photographs, taken primarily by J.O. Brew, to write his interpretive manuscript on the kiva murals of this site. With few exceptions, contemporary archaeologists have not returned to now-historic photographs to re-assess early excavations. Cameron (1999) used historic photographs at Oraibi in conjunction with census records to good effect, however, to document reorganization and collapse of the village after the Split of 1906. While photographs of historic excavations are readily available for a number of archaeological sites in the Southwest (see Chaco Digital Archive), I was unable to locate projects other than this dissertation that relied primarily upon photos as new or re-interpretable sources of data.

In general, early archaeological projects in the Southwest that utilized photography (e.g., Kidder at Pecos, Nelson in the Galisteo Basin and Pepper at Bonito), created idiosyncratic collections of images devoted to themes of interest rather than as an overarching and systematic arm of data collection. Morris's peers generally focused on recording a few “fantastic” finds in photographs in order to give primacy to one object over another (an extraordinary stratigraphic profile, Spanish plaster on walls or dozens of cylinder vessels). Thus photographs highlighted some form over another and

participated in the creation of representational flux and the expression of competing motivations (Bohrer 2011:119). Morris, conversely, tended to use photography for both the fantastic and mundane. While he did focus his lens as perhaps a journalist, antiquarian or tourist might, he did capture dozens of photographs of rooms and kivas even when they were devoid of subjects that typically warranted such honor. His was, indeed, a shift toward scientific archaeological recording in the modern sense of the word.

Archaeological photography captures images on a human scale — from site-wide panoramas to artifact-focused macroscopic detail. The same location can be photographed over time to show changes, and reveal new information. Through photography, elements of every part of a site can be recorded and compared to others in ways that are not possible with notes or sketch maps. In its relatively short history, archaeology has existed as a positivist, realist science whose roots are staunchly based in historical “fact.” This is perhaps why photography was adopted so early into the profession. It is certainly why Morris's photographic documents provide some of the richest and most objective data available for a modern scholar to consider now, whether to lend their support to Morris's original interpretations or enable new ones.

Multimodal analysis

Multimodal analysis draws upon the theories, techniques, practices and research needs of many academic disciplines in order to understand communication and

representation that is beyond simple language or text. This type of analysis has become popular in the last decade as a means to systematically address contentious issues in a variety of fields and to utilize new media and technologies to study these issues (Kress 2010).

Multimodal analysis provides concepts, lexicons, methodology, and a framework for the collection and analysis of visual, aural, embodied and spatial aspects of interaction and environments, and the relationships between these (Jewitt, 2009).

Multimodal analysis' strengths lie in its capacity to build systematic inventories from a variety of available resources, apply organizing principles to vast bodies of data (sometimes with sophisticated software programs), and ultimately to assess those data. As originally developed, it was a technique meant to be used to map semiotic resources found in multiple modes of data (color, gesture, movement, gaze, voice, music, photo, text, etc.), and then to cultivate means by which those variety of media might be understood — in some cases across time and space (Bezemer 2011). Multimodal studies are often applied to analyses of digital data within social research (with living peoples), but to my knowledge this is the first time such methods have been explicitly applied to archaeological data. To be clear, multimodal analysis, originally designed to be used to study living peoples and their myriad modes of communication, is not the focus of this project. Rather, multimodal analysis has helped me to think about and create a definable system for data that are not systematic, clear, or easily interpretable, and do not lend themselves to purely quantitative or qualitative analysis. The strictures of multimodal analysis can account for these issues that often preclude analysis of

problematic archaeological collections; consequently, its system of coding, description, analysis, interpretation and assessment in spatial and temporal contexts and is thus ideally suited for the materials from Aztec.

Grounded Theory

For all intents and purposes, Grounded Theory (Glaser and Strauss 1999) is the handmaiden to multimodal analysis, but it warrants its own explanation. Grounded Theory is essentially inductive coding (Miles and Huberman 1994:56), and it is meant to produce multimodal representations or linkages of data that allow for analysis across related source material. In this scenario, inductive coding is reliant on inductive reasoning to code data in such a way that themes might emerge from raw data through repeated comparison and examination. This type of qualitative content analysis is specifically suited or geared toward research where few previous studies exist. It enables the identification of key themes by reducing the material to sets of categories. As an example: in inductive or open coding, a researcher reviews the raw data and makes notes about the material. This process is repeated and material is repeatedly read to add to and refine notes in an effort to recognize patterns, group data and reduce the number of categories applied.

There are multiple forms and application types of this application. For this research, there are five stages of application of Grounded Theory:

i. Coding

- a. Open Coding — a procedure for developing categories of information (Cresswell 2009: 186). This is a relatively straightforward process, used here to examine Morris's legacy and determine if salient categories might be applied. Categorization was often limited to the type of data, date, and provenience. Essentially, open coding applies codes or keywords to basic archaeological categories. The key in this type of coding is to avoid simple or binary descriptions, but to do what is called 'saturate' — (Strauss and Corbin 1998) to look for instances that represent the category and continue looking (and interrogating the legacy data) until new information no longer provides further insight into the category. This type of coding and saturation has been recorded in an Excel file.
- b. Axial Coding — a procedure for interconnecting the categories. More complicated, this is a means by which keywords and patterns across time and space can be cross-referenced and assessed. I have the Apple program Aperture to embed axial coding (Strauss and Corbin 1998).
- c. Selective Coding — a procedure for building a story that connects the categories by producing a discursive set of theoretical propositions (Miles and Huberman 1994). For my purposes, after I had completed data input and coding according to the first two categories, a preponderance of evidence emerged that I felt warranted further investigation. It was the large amounts of evidence in three separate categories that determined the case studies I selected for analysis in this dissertation. Those three cases are Kiva D, the burial data, and Room 139, each of which is considered in subsequent chapters of this dissertation.
 - Sample Codes could include for LM (Leitmotiv), PATT (Pattern), TH (Theme), CL (Casual Link) (Miles ad Huberman 1994: 57, 69). Pattern codes are inferential and explanatory, where a segment of 'field notes' illustrates an emergent pattern. This is analogous to cluster analytic and factor-analytic devices used in statistical analyses.
- d. Example (**Fig 3.6**): Photographs of burials assembled for this project were coded in a relatively straightforward manner: sex, age, pathology, disposition and association were assessed (with the help of a forensic anthropologist). In turn, these were compared with one another; and locations were determined based on context data. Patterns emerged when the same vessels were identified in multiple photographs — for instance when the same vessel was identified in two separate

photographs that seemed to show different burials. This was noted as two burials stacked atop one another next to a McElmo B/w vessel. Broader patterns (See Chapter 6) emerged related to patterns of associated grave good and post-mortem treatment of some of the dead.

ii. Constant Comparison

- a. Maintain close connection between categories (codes) and data. In Sociology and Education, this step is to safeguard multiple investigators from interpreting similar data patterns differently. (Kolb 2012: 83). Comparison at Aztec worked in the form of assessment between the interpretation of the site in letters, reports, and popular articles written by Morris and other regional archaeologists. Disparities that could be tracked from different authors and across time called interpretations into question; while similarity was examined based upon first-hand experience with the information, or whether it was a perpetuation (an historic game of “telephone.”). For instance, as will be seen in Chapter 5, Morris himself interpreted the human remains in one of the Aztec kivas three different ways in three different publications. His boss, Wissler, repeated each of Morris's interpretations in popular media, and neither man retracted his earlier and possibly erroneous statements. These types of “narrative evolutions” were tracked through the data.
- b. Example: Kiva D (Chapter 4) was subject to multiple interpretations by Morris over the course of its excavation and in the subsequent months before write-up. Exactly how and why his interpretation changed (the individuals interred were trapped by a fire evolved as Morris excavated surrounding rooms, but his multiple interpretations could not be clarified without the comparison to both his published and unpublished accounts on the problem.

iii. Saturation

- a. After constant comparison and further sampling (There are no new “illuminations” of the concept, object of study, analysis) — the category is saturated, and ready for interpretation (Glaser and Strauss: 1999:62).
- b. No new relevant data (e.g., repositories have been combed, there is no additional gray literature, oral history, etc. that may clear up issues or deepen understandings). If this is the case, the data for a room, kiva, refuse mound etc., are checked-off as completed. Unfortunately, it is very likely that additional data for this project will come to light in the future. For instance, a batch of Earl Morris's papers were just sold at auction to a private investigator and are currently lost; additional oral history from residents of Aztec and descendent community members may help to bolster our understanding of the site, etc. For now,

however, I consider the legacy data related to Aztec closed and saturated.

- c. Example: One example from Room 139 (Chapter 6) called for a variety of additional (and I would say, non-traditional) forays into archaeological investigation that were necessary to 'saturate' the available data. The first came from a number of letters written 17 years after the excavation of the room that indicted the possible presence of an ear of sweet corn; and the second was the need to interrogate Morris's assessment of the injuries suffered by the woman (the "Splinted Skeleton" — see Chapter 6) to ascertain veracity and to determine if more data might be developed. The first effort at saturation and analysis led to a hunt to track down a lost artifact (the corn), have it AMS tested, and (in the immediate future) have it genetically tested. This artifact would not have been found without an examination of legacy data. The injuries described by Morris as suffered by the young woman in the room were assessed by three forensic anthropologists, a trauma surgeon and two orthopedic specialists in order to reconstruct additional information about her life and death.

iv. Discover Categories

- a. Categories are concepts that relate to the same phenomena or occurrences. I want to be careful not to impose modern archaeological categories and sensibilities on Morris and his contemporaries' work. (There is a great debate on *forced* versus *emergent* categories in Grounded Theory) (Udo 2007:133). Consequently, I initially tried to maintain his vocabulary to explain pottery type, grave wrappings, etc. so that I did not inadvertently alter the data. For the most part I am confident this did not occur, but with respect to several categories (masonry, grave goods, ceramics), it became untenable to use Morris's categories. When these categories were changed to modern terms, I noted in the database.
- b. Example: Upon assessment of burials at Aztec (Chapter 5), in which a number of previously unrecognized burials were added to the database, it became quite clear to me that the burial practices fell into categorical patterns of typical, high status and inconsiderate. These distinctions in turn led usable categories of comparison with other great house sites such as Pueblo Bonito.

v. Strength Assessment

- a. This final code was assigned by me as a means to assess whether there were, indeed, multiple lines of evidence to make particular assessments and interpretations. Who was the source? Some observers were more reliable and/or accurate than others. Are the data repeated? Multiple

sources recording data made them more verifiable than a single source. If a source for this photo is plausible, can it be matched with the masonry from a modern photo? These and other factors helped guide my assessment of the reliability, or strength, of data. While this category might initially seem somewhat arbitrary it gained importance as a consideration when excavation was undertaken by WPA, CCC, or other members of staff or the public who collected data from Aztec with little or no archaeological training.

- b. An example of how some of the multimodal forms of data are coded can be seen in **Fig 3.6**. Key word searches that included the Room Number would pull up all associated information on the room — in whatever form. Thus, a researcher who searched for “Room 178” would call up a map of the West Wing, four photographs of the Burial of the Warrior, the report on the Warrior's shield written in the 1980s, numerous letters between Wissler and Morris about the burial, an article about the burial published in the magazine *Popular Mechanics* in 1920 (Anonymous 1920:530), a photograph of the Warrior that was on exhibit in the Visitor's Center, and the original artifact inventory written in Morris's own hand, as well as the typed version that was made by AMNH upon accession. These data could be sorted by source, data of creation, creator, and location of the original files might (museum, room, drawer, file folder, etc.), in any manner the researcher chose.

The data also include notes from the researcher (me), annotating the information. For instance, a number of artifacts went missing between discovery and final accession into the museum. The letters also explain that the discovery was not made by Morris, but “a man left in charge” who hit the burial with his shovel and likely damaged at least one artifact, that the room was initially opened in June of 1920 but that the Warrior was not discovered until 1921, and that all the artifacts collected were thoroughly washed.

The data contain a scrap of paper with figures crossed out that indicate there were a number of floor and wall features found in Room 178 which were not included in Morris's publication. In all, there are 24 pieces of data (notes, letters and photos)

associated with this one room. Some are duplicates (photos found in more than one place, or photos of the same subject but taken from slightly different angles). Some are notes that do not reveal much additional information. Overall, however, this example illustrates the fact that there is often *much more* to be found in the archives than that which has already been published. I should note that the database does not include the most recent 20 or so years of reports or articles on this burial — which are easily obtainable online. I only included non-published, or not widely disseminated, data that I personally scanned. In this case, the information on the loss of objects between excavation and accession was useful, because I will claim (as have others) that the burial in Room 178 was of a high status individual, and the artifacts included in his burial are testament to this fact — even though some are missing. This is therefore an example of an instance when including all the information available allows us to refine our understanding of material, even when it has been at least partially published already. And the results are even more pronounced in the cases of data that have not yet been published at all.

Microhistory

Early in the data-compilation and coding process, I hoped the outcome would be a completely re-envisioned site-wide analysis of Aztec. However, the sheer volume of data quickly made this unreasonable. It became essential to limit analysis of the mass of coded data to a few portions of the site that, based upon saturation and possible outcomes, might address some of the big questions outlined in Chapter 1.

A subdiscipline within the field of History, called *microhistory*, has seemed particularly well-suited to my revised goals. Microhistory has been applied to historical subjects for decades, but was first given its name by Charles Joyner who wrote that the approach “aspires to ask big questions from small spaces” (Joyner 1995). Microhistory got its start in fine-grained, laser-like studies of historical events and individuals in such works as *The Unredeemed Captive* (1994), *A Midwife's Tale* (Ulrich 1991), and *The Great Cat Massacre: and Other Episodes in French Cultural History* (Darnton 1984). This last author, a professor of History at Princeton, co-taught a course with Clifford Geertz. Geertz would go on to pioneer notions of “thick description” as exemplified in his seminal “Deep Play: Notes on the Balinese Cock Fight.” Darnton, however, would base some of his work on semiotics, and thick description of historical events — in this case a *single* historical event. In the Cat Massacre, he examined the capture, trial, sentencing and execution of hundreds of cats by printers' apprentices and journeymen one afternoon in early 18th century France. This history was developed from two first-person accounts, which were bolstered by dozens of secondary, indirect sources. This was not the first example, but it is one of the most famous examples of *microhistory* within the discipline of History, which until then had been geared towards generalist interpretations of much larger events.

Some archaeologists — mostly those who specialized in historical archaeology — soon adopted the approach. Microhistories (e.g., Sherratt 1995) came to the forefront of the field in the mid-1990s when ideas of bringing back the “grand narratives” in archaeology were working in tandem with a shift towards household archaeologies. The

two methods complemented one another. Some of the results were both methodologically new and geared toward a popular audience, such as *Small Worlds: Method, Meaning, & Narrative in Microhistory* (Brooks, DeCorse, and Walton eds. 2010), and *Tales of Gotham: Historical Archaeology, Ethnohistory and Microhistory* (Jonowitz and Dallal eds. 2013). What was born was a potent method to bridge microhistorical data from small spaces and grand-scale qualities of archaeological data with a multiscalar analytical tool. Essentially, “by making historians sensitive...to the changes of voice in documents, microhistory offers great rewards. It allows scholars to uncover disjunctures between what those who created documents thought was necessary to record and what the scholar wants to know” (Muir 1998). As will become clear, this approach has certainly proven applicable to the archaeological site that was Aztec, the historical nature of the data associated with Aztec, and its modern reinvestigation.

Prosopography

One final method borrowed from a source outside of traditional archaeology developed from saturation results that indicated there was a vast amount of burial data that for unknown reasons had not been written up by Morris. This approach required an adaptation of methods, but it is one the inclusion of which could have interesting implications for demographic analysis in a broader sense. Indeed it may provide a possible avenue for answering a few of the questions that also plague an important area of Chaco Canyon research (see Akins 1986). For additional analytic power with respect to human remains, I turned to Classicists and Historians; each of whom have had

significant success when they move beyond basic description and analytics. The analysis in question is what historians have called *prosopography*. The word has become essentially shorthand to describe “biography in the aggregate.” Robin Fleming, professor of Medieval History at Boston College, a recent MacArthur fellow and historian of Dark Age Britain, discusses in “Writing Biography on the Edge of History”:

Because of the near-impossibility of marshaling sufficient sources to write even the barest of bare-bones biographies, a number of historians in my field have chosen, instead, to write or edit volumes about particular people, which are, in fact, more 'times' than 'life,' or more 'times and acquaintances' than 'biography.'...Although these volumes are as much about backdrop as about star, they do allow us to see individual actors in ways that few other studies do (Fleming 2009:606-607).

Biography of prehistoric individuals, Fleming demonstrates, is not beyond the pale, when multiple data sources (e.g., archaeological, historical, ethnographic, etc.) are consulted and strictures of comparison, analysis, saturation, etc. are applied. She argues convincingly that biography in the traditional sense is flexible enough to adjust to past persons whose existence is only represented in material remains.

And yet the dim outlines of whose life can be perceived if we think about it in the context of the lives of those other individuals whose real and particular skeletons surrounded her [a young woman who suffered from leprosy] own. It seems clear to me, at least, that the work of archaeologists can help us recuperate a world of intimate details about long-dead beings whose lives were never captured in words. Indeed, I would argue that with their help, we historians may well be able to write more convincing lives than we have in the past. Still, rather like the individuals whom prosopographers pursue, the skeletons that archaeologists dig up need to be thought about in the context of whole communities and generations of skeletons. But once we have established patterns and prevalences of life, health, and death—things that broad studies of this material can reveal—we can then go on to disaggregate a few individuals from all the rest (Fleming 2009:610).

Archaeologists seem to be turning in this general direction (Kuckelman 2008). Hegmon (2013) outlined a need to focus on the “archaeology of the human experience” and argued that in order to resonate with the public, archaeological data should contribute to broader social science themes. Potential foci thus encompass the range of human experiences and include both positive and negative outcomes. The latter include universal human themes such as pain, suffering, captivity and inequality. Hegmon argues that current published versions of archaeological research are sterile and that “There needs to be a place — even in academic journals — for accounts that are both rigorous and moving” (Hegmon 2013:16-17).

People may not be only objects of narrative biography in the aggregate. “Place” within the landscape is also an important concept for archaeologists. Recent work by Ashmore (2002), Tilley (1994), and Zedeno (1997) argues that in order to understand past social organization we must understand the relations between places that were differentially used. That means understanding how those places formed through human action. Therefore understanding landscape becomes a key to understanding past societies. This point, and the insights enabled by landscape archaeology, make clear the essential importance Aztec holds for an understanding not only of Chacoan and post-Chacoan life but indeed of the practices and approaches of Southwest archaeology overall.

Looking at theory and practice concerning what has been called the 'biography' or 'life history of place,' I suggest how this kind of inquiry, among others, reveals materialized 'decisions and dispositions,' both ancient and modern, and how social and spatial inference in archaeology contributes to concerns beyond archaeology (Ashmore 2002:1173).

VIII. Outcomes

This all seems quite a hodgepodge of applied methods that have no clear overlap with current accepted practice in archaeology. However, I would argue that archaeology regularly comes up short with respect to 1) clear application of methods to order and assess complicated data, and particularly legacy data and 2) the development of compelling, structured, interpreted, convincing narratives of past events, people and historical processes. The historical architect Henry Glassie acknowledged this possible overreach: “An interpretation of the house's meanings and functions, its possible extensions in context, is at its most controlled, an act of pure courage. But hypothesis and a bit of scholastic over-reaching are better than nothing” (Glassie 1975:117). Aztec seems to be an excellent laboratory to test the application of the archaeological research methods listed above. The most logical exposition of these is the development of an outcome of narrative history, where systematic detailed analysis on a small scale results in a search for unforeseen meaning embedded in case studies (Walton 2008:4).

If, for the sake of this research, a new type of “hypothesis and over-reaching” is warranted, how might it be crafted? Historians are generally reluctant to describe the methods employed in historical research (Cronon 1999), but putting into context the manners in which the various related fields of Archaeology, Historical Archaeology, History, Classics, and Art History each create interpretive history allows for the extraction of generalized methods. Such an exercise allows one to borrow the most useful methods from each field, a matter of particular importance for this project. Thus the data presented here benefit from the interpretive skills of all these disciplines and

approaches. Two recent books by Lekson, *A History of Southwest Archaeology* (2009) and *Chaco Meridian* (2015), apply tools of production and evaluation that are gleaned from cross-disciplinary methods. Tools of production include (1) *triangulation*, or understanding historical trajectories in their own terms, (2) *commensuration*, or relentless comparisons, and (3) *models* to develop and evaluate counter-factuals and alternative readings. Tools of evaluation include coherence (logic, data), context, degrees/levels of proof, sampling, and native accounts or ethnohistory.

After the materials documenting Aztec were identified, sorted, and re-catalogued, they were vetted for problems and then re-assembled. This is usually the end-goal of most archaeological research, but often studies result in data parsing rather than reconstruction, and rarely do analyses in prehistoric contexts such as Aztec go so far as to write narrative histories. This statement identifies nothing new in the pedagogy of prehistoric academic discourse as related to the (falsely?) dichotomous methods between science and the humanities. It is my hope that this study will help highlight the spurious nature of this proclaimed dichotomy and help create rapprochement between what are, I suggest, not mutually exclusive approaches. This is not an original idea: C.P. Snow (1959) discusses these issues deeply. For many in the humanities, narrative histories are part and parcel of doing research on prehistoric and historic groups — and see E.O. Wilson for an application in the hard sciences, and Lekson (2009:3, 253) for current applications in Southwestern archaeology.

Such a frivolous claim of dichotomy is detrimental to a project of this nature that relies upon legacy data and archaeological data from historic and prehistoric sources

and operates in world where results are purview of myriad audiences that include specialists, descendent communities and the public. There are many questions to be addressed at Aztec, and multimodal analysis organized with grounded theory and focusing on microhistory, prosopography and narrative contributes to many of these goals.

The fresh theoretical perspective and new methodologies that characterize this research allow me to address questions of major importance for Southwestern archaeology. Who lived and died at Aztec Ruins? How did they organize themselves? What were their lives like? What was the role of this site in the changing landscape of the Chacoan and post-Chacoan Southwest? How did Aztec end? Mining old records for new data enables new and clearer answers to these long-standing questions.

Essentially, Grounded Theory results in detailed content analysis that is meant to pose summative descriptions across multiple categories of data types. It is useful because it takes a system — even one which exists in varying degrees of a chaotic state — applies a syntax as a framework of analysis (beyond simple serendipitous findings in archival materials), and outputs data that can be assessed (and re-assessed) by both current and future researchers. Multimodal analysis in conjunction with Grounded Theory alone is not sufficient, however — at least not as a means of creating “summative descriptions” which, while similar to Geertz's thick descriptions, fall short of what archaeologists *need* to do — which is microhistory that results in narrative history (Lekson 2009:3).

In this case, microhistories relate to collection and analysis of new artifactual data that relate to how Aztec functioned in its last century. Did Chacoan-like traits of hierarchy and complexity persist? Was the socio-political tumult seen in other parts of the region also seen at Aztec? The research presented here selected two spaces — a room and a kiva — and a single set of behavior — burial — in order to attempt to answer these questions through the lens of microhistory.

The research presented in this dissertation outlines a new method for dealing with legacy data. It presents three case-studies of how these data might be compiled, assessed, and integrated to address questions about the 13th century occupation of Aztec. Finally, it uses these results to build a new historical interpretation of Aztec West. The results indicate that 1) even the smallest single units of excavation (e.g., a single room) may produce significant amounts of unexamined or unobserved data for analysis that can change a modern analysis and 2) in the context of larger studies, such as cross-site mortuary analysis, this type of research highlights and elucidates sometimes unexpected relationships between data across time and space.

It is an important feature of this project that I have cross-coded data so that they may be integrated into the Park Service information sharing website and, once funding is obtained, made public also on tDAR (the Digital Archaeological Record). Information will be made available to the Park Interpretation team. This latter data-sharing plan is particularly salient because the long-term General Management Plan at Aztec Ruins is to open portions of the Park (currently closed because they are insufficiently documented) to a limited number of public tours within the immediate future.

Chapter 4: Kiva D

I. Introduction

Earl Morris excavated sixteen (of an estimated 25) kivas at Aztec Ruins between 1916 and 1924. Morris never published a monograph on kivas, though he had intended to do so. His five published monographs on Aztec (1919, 1921, 1924a, 1924b and 1928) detailed much of his work, but a series of events prevented him from completing a monograph specifically on kivas. This chapter examines one of those kivas — Kiva D — located in the East Wing of Aztec West. Data used in this re-analysis are drawn primarily from unpublished notes, letters and photographs, and supplemented by some of Morris's published works. Analysis of Kiva D demonstrates that it is unique among kivas, including those at Aztec and kivas in general during the post-Chacoan era. Its uniqueness derives both from how thoroughly it was recorded and from the five people found on its floor: their situation demonstrates either a non-formal burial context or purposeful murder which was concurrent with or immediately followed by the building's complete destruction by fire. This chapter explores the nature of this event, presenting an analysis and discussion of possible causal factors as well as the feature's significance. This is made possible by drawing upon new data on Kiva D that have been rediscovered in museum archives.

Kivas within the Southwest, and particularly those constructed and occupied during the 10th-12th centuries, have long been an enigmatic architectural form. Entire volumes have assessed their function and significance in Ancestral Puebloan life (e.g.,

Lipe and Hegmon 1989). Watson Smith's "When is a Kiva" (1994), Michael Adler's "Why is a Kiva" (1993) and Lekson's "The Idea of a Kiva in Anasazi Architecture" (1988) address the critical components of this debate. For purposes of this chapter, I limit the chief questions related to Kiva D to those the available data may answer. These questions are not only specific to Aztec and Aztecan kivas, however, but have broader implications. They revolve around the following issues:

1. *Architecture* — Architectural features (ventilator systems, pilasters, masonry styles, etc.) have been a long-standing means of determining time period of construction and cultural affiliation with those who constructed the kiva.² Is this appropriate?
2. *Dating* — When was the structure built and occupied, and when did it end?
3. *Function* — The functions of a kiva during its period of use are determined by material objects found in primary kivas contexts on kiva floors. This question requires an assessment of "anachronistic" where specialized ritual architecture is in place, but so too are assemblages with domestic or utilitarian function. Lekson (1988) exposed the folly of this approach; how does Kiva D add to our understanding?
4. *Closing sequence* — How did a kiva come to its functional end? In some cases, this involves what is described as "ritual" burning when ceremonial deposits are placed on the floor, the roof is partially dismantled and the building purposely burned (LeBlanc 1999; Ryan 1010). Closing is significant for archaeologists because it provides a clear *terminus post quem* for when the building ceased to be used.

After considering the evidence concerning these questions for Kiva D at Aztec, this chapter will discuss the unusual inclusion of five burned individuals (one adult and four children) found on the floor. Unfortunately, these remains were not studied at the time of excavation. Partial remains of three of the children are still stored at the

² For complete review of this distinction and a critical analysis of its application see Lister and Lister 1990 and Cameron 2005.

American Museum of Natural History; however at the time of writing this dissertation the adult and one child could not be located. Despite this, photographs of their original context are available, as are several of Morris's drawings and descriptions in publications, letters and field notebooks. In this chapter, these historical data will be coupled with modern archaeological data and comparative kiva data to develop a new and better understanding of Aztec West. In this way the detailed study of Kiva D can function as microhistory, shedding light on a broader series of issues and contexts beyond the original case study. Indeed, Kiva D can answer questions about social unrest that may have resulted in extremely rare burial in a kiva, an unusual assemblage of artifacts left on the floor, and a burning event that may have precipitated the end of Aztec West.

Nature of the Evidence (listed below; all except last, unpublished).

Photos	Seven photographs taken during and after excavation (Figs 4.1-4.7)
Maps	One plan map with floor assemblage (Fig 4.8)
Notes	One handwritten paragraph from “Kiva Notes” notebook that was likely written by Morris at the time of excavation, but was later translated (presumably verbatim) into typeset by staff at the CU Museum of Natural History (Fig 4.9)

Kiva D had been burned before its original contents were removed. One adult, apparently a man, to judge from the heavy jaw and pronounced supra-orbital ridges, and 4 children had been burned during the conflagration. The body of the adult lay against the east wall; those of the 4 children along the northwest side. It seems probable that these persons were burned alive or very soon after death, because the masses of charred flesh showed that decomposition had not consumed any appreciable portion of the bodies. Catalog numbers 354-405 inclusive were scattered about the room [see chart]. Quantities of charcoal covered the

floor. The adobe from the roof was fused in place and in others burned to the consistency of brick. The space above this was filled by fallen masonry (CUMNH_ARCHIVES143).

For ease of use, I have redrafted this map to show its original depictions (**Fig 4.10**) and have then cross-referenced the numbers listed for the de facto refuse on the floor and inserted artifact descriptions that derive from Morris's original artifact categorization (**Fig 4.11**).

Letters One letter that describes details related to the excavation written by Morris to Pliny E. Goddard on June 24, 1917 (AMNH080) (See below).

Published Accounts of the excavation appear in Morris 1919, 1924a, 1928. There were also bodies in Kiva D, but these were the remains of individuals who were cremated during the conflagration which destroyed the roof of the council chamber (Morris 1919 13-17).

Morris Aztec Burials: 1924a

A charred adult, apparently a male, lay against the wall at the east side of Kiva D, and in the northwest quadrant were the bodies of four children similarly carbonized. The floor was clean of refuse of human origin, and there was no wind-blown sand or rain-washed plaster beneath the slag-like remains. Pottery vessels and other objects were scattered about on the floor and on the banquettes as if left where convenience dictated by those accustomed to frequent the chamber. These conditions, together with the fact that kivas were seldom used for burial unless abandoned and serving as refuse pits, occasioned the belief that the five persons were trapped and burned alive when fire destroyed the roof. Consequently, they were not listed among the burials. A glance at the catalogue of objects taken from the chamber, reveals, however, the following entries: 29.0-6786, fragment of charred body of child with cotton cloth adhering; 29.0-6787, fragment of charred body of child fused to cloth overlaid by a plaited mat of rushes; 29.0-6788, fragment of charred body of child retaining three kinds of wrappings, 1 cloth, 2 sewn mat, 3 plaited mat. Cloth would be an expected article of vestiture, but no sort of garment has ever been found fashioned from either sewn or plaited matting, and the coarse unwieldy nature of these fabrics would almost preclude their use for such a purpose. On the contrary, rush mats were the customary ultimate wrappings of the dead. Therefore it seems reasonably certain that the individuals in question were prepared for sepulture according to the prevailing

custom. It is by no means difficult to reconstruct in the imagination circumstances under which those dying in the kiva would not have been removed from it; or, on the other hand, to account for the bringing of the bodies from another quarter of the pueblo to this chamber as a temporary or final resting place. When pottery was placed with the dead, it is almost invariably found near the remains. Since the vessels and other objects in Kiva D were scattered all over the room, it is not justifiable to account for their presence by assuming that they were burial offerings (Morris 1924a:212-213).

Analysis of Photographs

- Floor** (Fig 4.2, 4.3) Morris does not discuss the presence of more than a single, prepared floor upon which both the human remains and artifact assemblage was found. Photos indicate the floor to be level, packed adobe with a variety of inclusions that are typical of floors found throughout the great house. There are at least three sections of the floor that are particularly blackened. These correspond with the locations of the cluster of children found, the final resting place of the adult, and the hearth. A particularly hard-packed and slightly lighter floor (it appears white in the photos) caps much of the southern half of the kiva. This capping surrounds the hearth and angles off toward the kiva bench at 4 and 8 o'clock positions (approximately — see map). This is the only kiva (either court, or blocked-in) at Aztec with this type of associated floor feature, and the only one that is visible in the available photographs. Morris did not remark on this unusual floor surface.
- Walls** (Fig 4.2, 4.3) “The walls [in the southeast quadrant of the site], except those of Kiva D which are very good, are poorly and characteristically built” (Morris 1928:294). The bench and upper lining walls of Kiva D are characterized as Type 3 Masonry by Brown and Paddock (2011), and consist of a mixture of breadloaf-sized and smaller rectangular masonry blocks, many with visible peck marks, placed with 2-3 cm mortar fill in a coarse, interlocking pattern. There is a series of sherds used as chinking stones in the southern recess. Most of the walls exhibit signs of high heat/discoloration in the form of blackening or discoloration (it is hard to tell in the B/w photo). No features are visible in the upper lining wall. Five niches are present in the lower lining/bench wall; two include vessels inside (discussed below). Photos indicate that thick layers of white plaster were still present on much of the bench, and on the lower lining walls immediately after excavation

(all gone by the time the next known photo of Kiva D was taken in 1945). Plaster (invariably white, no color discernible) was also present — to a much lesser extent — on the lower portions of the pilasters and the lower portion of the upper lining wall. It seems likely from this pattern that when the roof was removed (either by humans or burning or both), the subsequent collapse of the closing materials/initial settling of the fill was not at a level much higher than the bench (approx. 90 cm) and thus the plaster on the upper lining walls was not preserved.

Fill (Fig 4.5, 4.6) Morris did not describe the kiva fill, but evidence from photographs indicates few if any intact beams survived the conflagration. The fill (from the floor up) appears to consist of ash with concentrations of charcoal, followed by collapsed roof-fall and roof closing materials (masonry, adobe), capped by wall fall/post-occupational fill. From photographic data, no clear stratigraphic breaks are visible, and there is a clear dearth of timber — which may indicate that the roof was removed prior to the fire/collapse, or that such timbers as there were burned completely.

Burials (Fig 4.15-4.18) The five individuals found in Kiva D were not assigned burial numbers because Morris initially believed them to be victims of the fire and not purposeful burials. Two of the photos may show the individuals as they were excavated. Morris described the remains as “charcoal.” There is no direct evidence for these individuals in the photos, but it is possible that portions of them might be seen collected in a cardboard box. At least portions of three of the children are still found at the AMNH.

Roof Morris does not directly describe the roof of Kiva D, but in his 1921 publication on the Great Kiva Reconstruction he notes “Most of the ordinary kivas in the Aztec Ruin were covered with vaulted roofs, which in each case depended for support upon a series of from six to ten masonry pilasters” (Morris 1921:20). Thus he believes it likely that the presence of eight relatively tall pilasters (approximately 80 cm + in height) indicates the roof was vaulted — cribbed in modern literature. Morris did not hypothesize that the roof could have been flat — though based on analysis of the photos it seems possible that the pilasters were the same height as the upper lining wall (Fig 4.2). The absence of numerous visible roofing beams in the fill may also indicate that less wood was present. This supports the hypothesis of a flat roof, but there is no direct evidence concerning how the original roof was constructed.

Pilasters (Fig 4.2-4.4) Eight masonry pilasters sat atop the bench. Most have partially collapsed. The original dimensions are difficult to discern; in subsequent stabilization photos, the pilasters were

reconstructed to be short — approximately 50 cm tall — but the discoloration on the upper lining wall in photos taken during excavation may indicate that the original roof supports were quite tall and may have extended nearly as high as the original upper lining wall. If these pilasters were intact at the time of the final burning episode they would have protected the lining wall from the intense heat in a manner corresponding to the pattern that seems evident from the photos. No features are apparent in the pilasters; at least two appear to be partially plastered, but only near the bases.

Hearth (Fig 4.2) The visible hearth is circular, flush with the floor, has completely vertical walls, appears relatively shallow, and has been coated with a relatively thick layer of red or brown mud, topped with white plaster that does not appear to be stained or fire-blackened. The hearth was cleaned out when photographed.

Vent (Fig 4.3) The ventilator is visible as a sub-floor rectangular hole, as a horizontal, latilla-supported subfloor shaft (broken into near the southern recess) and as a vertical, rectangular, chimney opening south of the kiva. This is a very typical “Chacoan subfloor vent” (Cameron 2005). The rectangular superstructure located just south of the hearth appears to be made of several courses of flat sandstone sitting atop a wooden latilla and topped with some sort of adobe — perhaps poured or more likely coating more masonry that is not visible in the photographs. The vent, which protrudes above the floor by at least 30 cm, was coated in mud and may have matched the lighter mud that covered the southern portion of the kiva floor. The subfloor portion, exposed when its roof collapsed (or was excavated), appears open and devoid of debris. It was supported by at least one small wooden latilla that sustains a jumbled mass of masonry and adobe upon which the final floor rests. The vertical portion of the vent is immediately adjacent to the southern recess wall and is masonry lined, with a rectangular opening. Its location truncates the north/south wall of the two rooms that lie immediately south of the kiva.

Niches (Fig 4.2, 4.5, 4.7) Five niches were built into the bench face, though only three are discernible from photos in the 12, 4, and 8 o'clock positions. The other two are known from the map. The niches appear to be plastered and of varying size, but in two instances they are broad enough to house vessels — in one, a grayware, undecorated bowl, and in another a Mesa Verde B/w bowl (Fig 4.6).

Artifacts (Figs 4.7-4.9, 4.19) This was the only kiva to have its floor assemblage recorded in a plan map. Kiva D contained 17 whole vessels, half a dozen axes and hammers, arrowheads, dozens of

bone bird tubes, and five burials. Their location was recorded and it was Morris's interpretation that the artifacts were left in the manner that they were used in daily life. Two photographs show artifacts in situ during excavation (**Fig 4.7, 4.8**), but none shows the final floor assemblage.



Fig 4.1. Southern portion of Kiva D, cleared, view to Southwest. Courtesy American Museum of Natural History. (119612)



Fig 4.2. Southern Portion of Kiva D, cleared. View to South. Courtesy of University of Colorado Museum of Natural History. (Aztec362)

Table 4.1: Artifact Listing for Kiva D
(CUMNH_ARCHIVES225, CUMNH_ARCHIVES226).

Morris' FS #	Morris's artifact description
354*	Black-on-white bowl
355	Black-on-white bowl
356	Black-on-white bowl
357	Black-on-white bowl
358	Black-on-white bowl
359	Black-on-white bowl
360	Black-on-white bowl
361	Black-on-white bowl
362	Black-on-white bowl
363	Black-on-white bowl
364	Small brown-gray bowl, undecorated
365	Black-on-white mug, Key-hole handle
366	Black-on-white mug
367	Black-on-white dipper
368	Black-on-white dipper
369	Coiled ware pot
370	Coiled ware pot. Zonal ornamentation
371	Hematite hammer. Double headed.
372	Grooved axe
373	Grooved axe
374	Grooved axe
375	Grooved axe
376	Grooved axe
377	Sandstone arrow straightener
378	Polished sandstone slab. Incomplete
379	Gilsenite (?) pendant [Morris's '?']
380	Arrowpoint
381	Arrowpoint
382	Arrowpoint. Incomplete
383	Worked turquoise
384	Shell pendant
385	Bone scraper. Incomplete
386	Bone tube
387	Bone tube
388	Bone tube
389	Bone tube
390	Bone tube
391	Bone tube
392	Bone tube Incomplete

393	Bone tube
394	Set of 6 wing bones of birds
395	Charred wooden cylinder, end hallowed out, grooved and perforated
396	Fragments of charred body of child with carbonized cloth adhering
397	Fragment of charred body of child fused to cloth overlaid by section of plaited mat of rushes
398	Fragment of charred body of child showing 3 kinds of wrapping: (1) cloth; (2) sewn mat; (3) plaited mat
399	Charred brain of child
400	Charred upper jaw of child
401	Charred lower jaw of child. Incomplete
402	Charred fragment of plaited mat
403	Charred fragments of coiled basket
404	Charred fragments of coiled basket
405	Cake of charred substance (meal?) found in No. 404, part of which still adheres

* The field numbers assigned these artifacts are those given by Morris in the summer of 1917. If these artifacts were accessioned into the AMNH, another set of numbers was assigned (all beginning with '29.0-'). Several of these artifacts can no longer be found either at Aztec Ruin or AMNH. It is likely that these were lost in transit, placed on display in the Aztec museum until they deteriorated, or were traded to the Abrams' family as part of an ongoing agreement to share some of the finds from Aztec. This was part of the original contract signed by AMNH in order to obtain permission to dig at Aztec (then owned by the Abrams family). In later years, the land was purchased outright, but Morris and AMNH staff honored their original agreement to share several hundred specimens with the family. Some of those specimens were from Kiva D. Consequently, the AMNH list is incomplete as are Morris's original field notes. I have therefore chosen to include the original field numbers and the complete listing here.

The whole vessels found in Kiva D were analyzed by Reed et al. (2005) and a summary analysis can be seen in **Fig 4.15**.



Fig 4.3 Kiva D, showing southern recess, hearth, ventilator and unusual adobe floor plastering. View to south. Courtesy University of Colorado Museum of Natural History (Aztec352).



Fig 4.4. Excavation of Kiva D in progress. View to northeast. Courtesy American Museum of Natural History. (Aztec015)



Fig 4.5. Excavation of Kiva D in progress. View to northeast. Courtesy University of Colorado Museum of Natural History. (Aztec216).

A Note on mislabeled photographs

There are three photographs in the AMNH collection that have been mislabeled as attributable or possibly attributable to Kiva D. The incorrect photos are AMNH 284291, labeled as “Kiva D”, AMNH 284293, labeled as “Kiva D”, and AMNH 294292, labeled as “Kiva D?” The pilasters, southern recess and masonry recorded in these images do not match either the photos taken of Kiva D in 1917 or the stabilization photos from 1945.

II. A Brief History of Kiva D

Kiva D was excavated under Earl Morris's supervision during early-mid June of the 1917 field season — the second year of major excavations at the site. Morris had excavated three kivas in the previous season and had written of his disappointment at the dearth of material objects (particularly whole pots), which he had hoped to collect for his patrons at the American Museum of Natural History. Consequently, the rich finds within Kiva D delighted him. In a letter dated June 24, 1917 addressed to Pliny E. Goddard (Curator of Ethnology at AMNH), Morris wrote that:

One of the kivas proved an exception to the rule in that it was literally full of specimens. The roof had been burned before any of the original contents of the kiva were removed. The bodies of four children and one adult were reduced to charcoal by the conflagration. Scattered about over the floor there were eleven bowls, two mugs, two ladles, and five cooking pots. Of these, all but four of the pots were repaired as they were found, and now constitute a beautiful display. In addition to the pottery the kiva contained a number of bone and stone implements, a few recoverable articles of wood, and impressions in charcoal of matting, cloth and basketry (AMNH 080).

Morris and a crew of between seven and nine men (five shovelers, two assistants, and two teamsters who hauled the spoil to the nearby Animas River) cleared the room in fewer than three days (**Fig 4.5** and **4.6**, partial crew). His work there was alluded to in his letters to the AMNH and was also documented by seven photographs of Kiva D taken by Morris during and immediately after its excavation. These reveal that the kiva floor was cleared from north to south, with loose dirt immediately above the floor thrown up onto the still-unexcavated southern portion.

In general, the excavation strategy at Aztec Ruins was to clear overburden and roof-fall rapidly with shovels. The chief mason would often stop work and collect what he determined was re-usable stone to stabilize and reconstruct exposed and damaged walls. Three men worked in a line to scrape the floor with shovels and pickaxes (no trowels or small hand tools are shown), while two men stood atop the unexcavated portion and used shovels to relay the loose dirt out and to the south of the kiva whence it was hauled away. After the overburden was cleared, the most skilled men in the crew (Morris considered shoveling a fine art) excavated the floor — more slowly — with shovels. In cases where artifact concentrations were high — particularly if beads or turquoise were discovered — the crew employed a screen, as they may have done on the floor of Kiva D since a screen is apparent in two photographs (**Fig 4.4** and **4.5**).

Unlike any of the other Kivas in Aztec, a map of Kiva D that included the floor assemblage was made (**Fig 4.9**). The author of this map is unknown, but the field specimen numbers correspond with numbers found in Morris's artifact catalog (which was written in his hand). While there is a screen (approximately 1/8") visible in a



Fig 4.7 *In situ* pottery on floor of Kiva D. Courtesy University of Colorado Museum of Natural History. (Aztec 375).



Fig 4.7a*. Northern San Juan Mesa Verde Black-on-White, Animas Variety Bowl, at right. Vessel 12 (Accession #29.0/6749). Courtesy American Museum of Natural History.



Fig 4.7b*. Mesa Verde style black-on-white bowl, Vessel 14, at left. (Accession #29.0/6744). Courtesy American Museum of Natural History.

photograph, no mention of its use was ever made, and no small objects (beads, copper bells) were officially recovered from the kiva. Fifty-five specimens, however, were collected (**see above list**), including 20 whole or partial vessels, five axes, eight bone tubes that Morris believed were tied together into an “ornament or breastplate” (Morris 1919:42), a cache of bird bones on the kiva bench, a hammer, an arrowhead, an arrow-shaft straightener, two baskets (one with burned meal inside), and some charred

textiles. Morris characterized the floor assemblage as scattered about '...as if left where convenience dictated by those accustomed to frequent the chamber' (Morris 1924a:212-213).

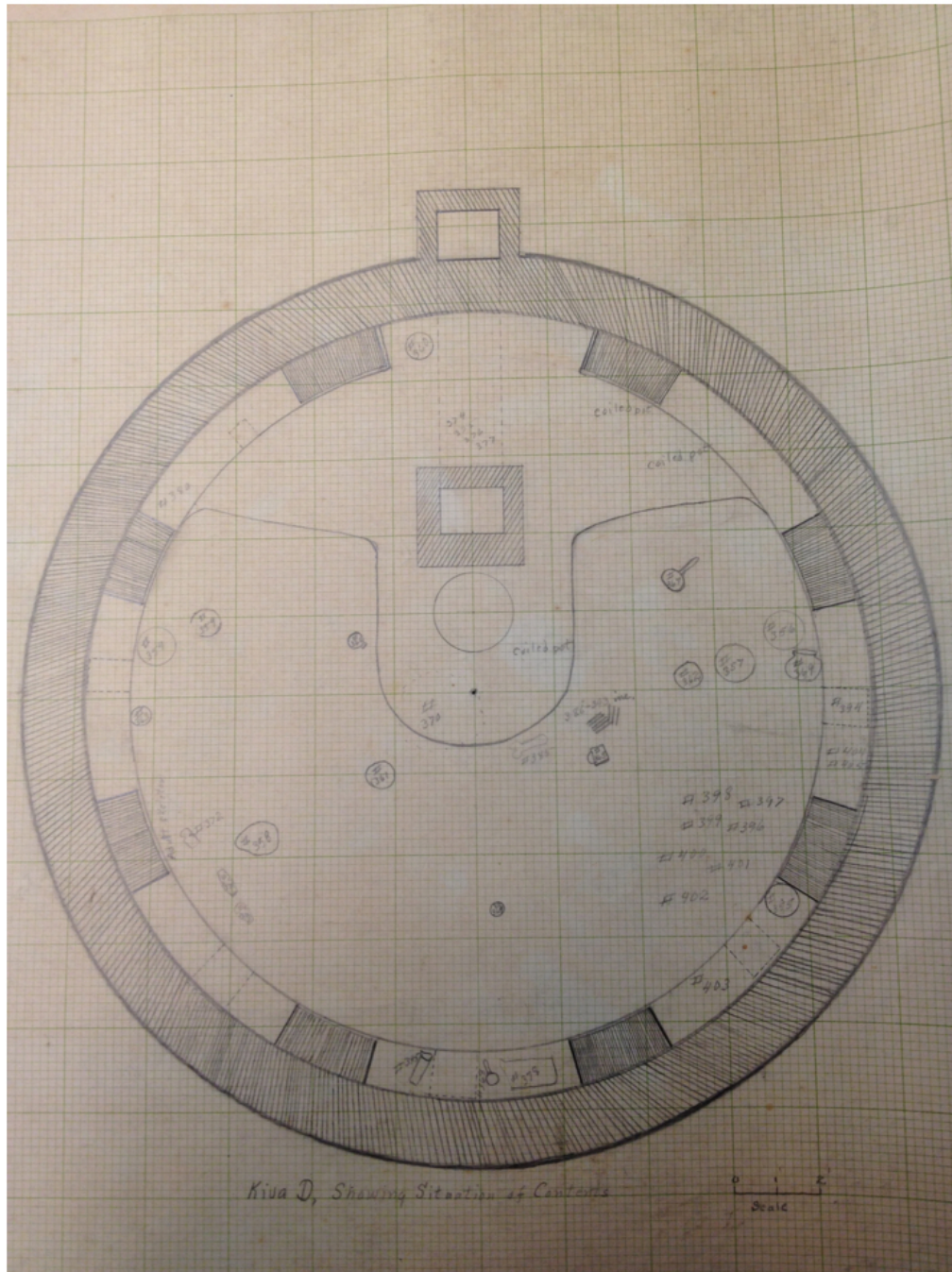


Fig 4.8. Original map of “Kiva D” c. 1917, unpublished, from AMNH Anthropology Archives. This is the only formal map of a kiva still in existence from Morris’ excavations at Aztec. Courtesy of the American Museum of Natural History. (AMNH150)

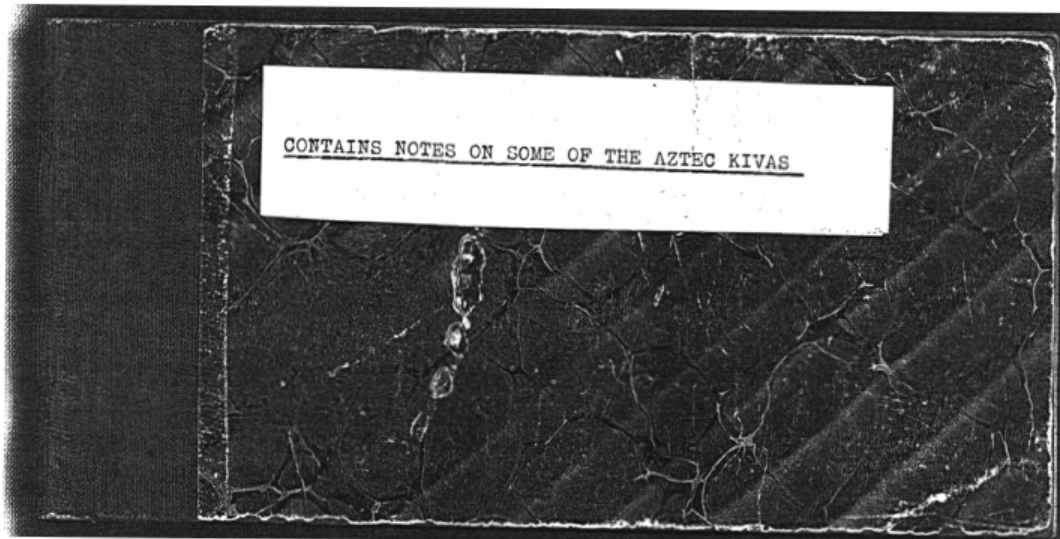


Fig 4.9a. Unpublished Kiva Notebook, presumably taken by Earl Morris during excavation at Aztec. Likely from 1917-1918.

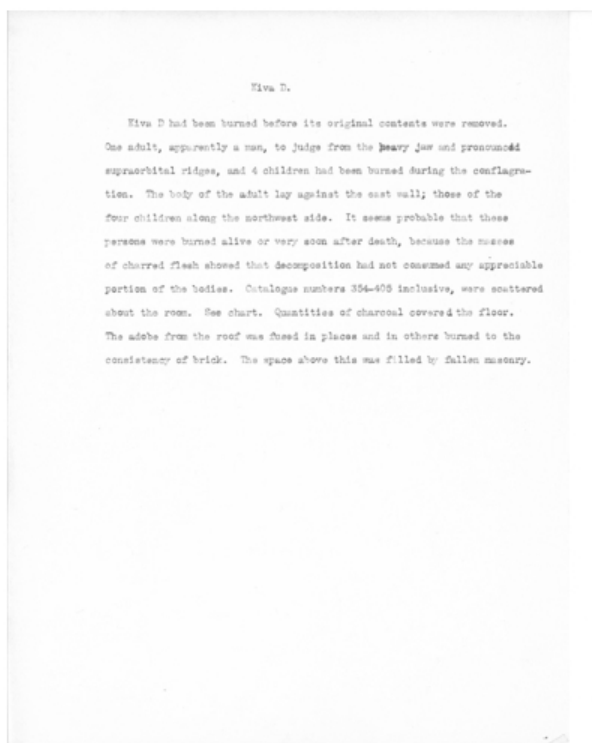


Fig 4.9b. Notes on Kiva D, author unknown, but presumably Morris. Courtesy of American Museum of Natural History, and CU Museum of Natural History

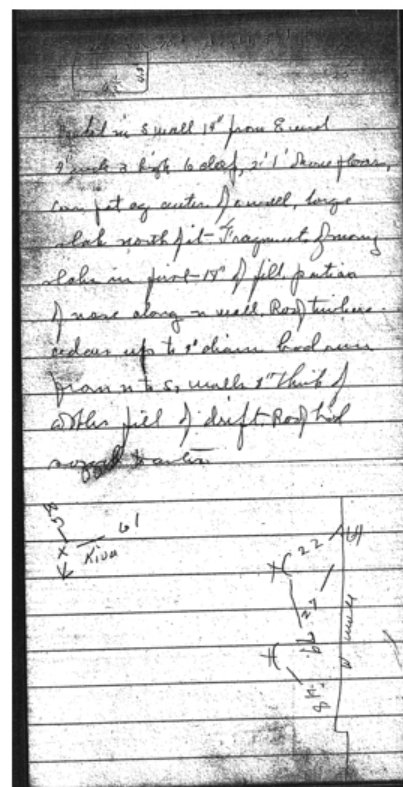


Fig 4.9c. Excerpt from Unpublished Kiva Notebook

Little is known about these interments. At the time of excavation, Morris determined that they were not 'purposeful'. Up until the point of excavating Kiva D, he had systematically assigned remains of whole skeletons, or groups of skeletons, burial numbers (Morris 1924a). In this way he distinguished those individuals found in Kiva D from the 186 cases of human remains he recorded as burials throughout Aztec West. Those specimens were most often found in subfloor pits, or in rooms that had been sealed off after the remains were deposited. The burials were carefully wrapped in an array of cotton, rush, and rabbit-fur blankets, regularly with whole vessels or other items placed in near association. The bodies recovered from Kiva D were unusual because, while there is some evidence that the human remains were wrapped in burial dress (in most cases it is unclear if these were tailored clothing, shrouds or both), no clear association with specific grave goods was asserted by Morris or can be confirmed by the existing maps or photographs.

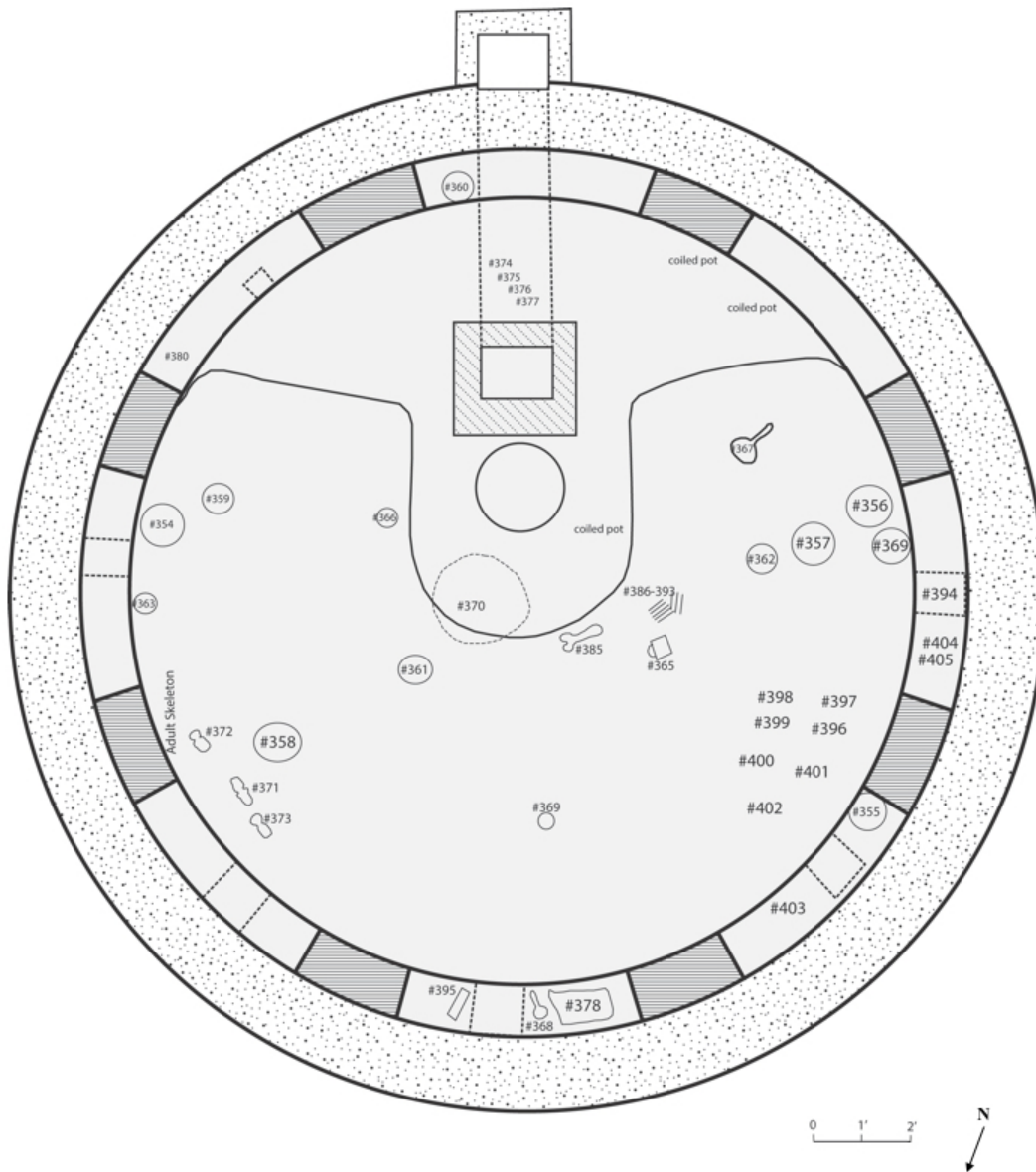


Fig 4.10. Re-drawn map of “Kiva D” c. 1917 from AMNH archives.

After the kiva was fully cleared, a mason and his assistant repaired the standing walls, and the floor was swept for a series of final photos. Kiva D remained open to the elements, relatively untouched by the National Park Service, until 1945 when

photographs showed 'pre' and 'post' images of a new stabilization effort with cement. After another forty years of continued stabilization efforts and exposure, the Park Service determined the best course of action to preserve the crumbling facades of the Southeast Wing of the building was to backfill it completely. This task was undertaken and completed in the 1990s.

III. Photography of Kiva D

One intriguing phenomenon about Kiva D is the sheer number of photographs taken of it, both during and after excavation. With only the Great Kiva as an exception, it is the most-photographed room in Aztec West during the Morris years. The seven photographs of Kiva D are more than double the number taken of 95% of all the rooms Morris excavated. Why so many photographs? Initially I hypothesized it was due to new camera equipment, initial excitement during first foray into digging during the 1917 season, or enthusiasm over the large number of whole vessels found on the floor.

Each of these hypotheses fell in turn. Morris wrote to the Kodak company in the Fall of 1917 for a new camera, but there is no indication it had arrived by the time Kiva D was excavated because Kodak was experiencing shortages due to WWI and was backlogged. Excitement at the beginning of a field season is perhaps not quantifiable — particularly with respect to Morris, who was universally known as a 'quiet' man — but 1917 did mark the first time Morris was on-site and in charge without an overseer from the Museum (Nelson had supervised the brief 1916 season). Indeed, Morris's notes and the number of photographs for 1917 (despite camera equipment) are remarkably

complete for a short period of time — perhaps the first month of the season. After that, it appears the paperwork production declined precipitously as crews moved into the northern portion of the East Wing. As evidence: there are fewer than six photographs taken of rooms and kivas during the latter part of the season, no rooms or kivas were mapped, and the room descriptions, with the exception of one (Room 41) drop to fewer than 200 words. So what accounts for the rich photographic record of Kiva D? The explanation for the number of photographs may reveal Morris's state of mind when Kiva D was nearly completely excavated and may signify that Morris was aware that the structure was unique. As will be shown below, the fact it was burned, filled with artifacts and intact burials, and included an unusual floor surface may have warranted special documentation.

IV. Re-Excavating Kiva D

This chapter collates the various records left by Morris to consider in detail the ways Kiva D allows us to reassess the primary questions that surround kivas in general as well as Kiva D in particular: their architecture, the dating of Kiva D, the function of kivas and the practices associated with their final use.

Architecture

The original architecture of Kiva D is relatively well-documented, with seven 1917 Morris photographs taken from three different directions that detail its makeup. These photos clearly show a central hearth, rectangular ventilator opening, sub-floor ventilator shaft, masonry bench, six irregular bench niches, southern recess, eight

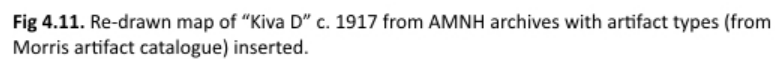
masonry pilasters and upper lining wall. A sipapu is conspicuously absent. The photos are particularly helpful because they often show masonry details, architecture and floor features that were sometimes obscured or obliterated by later stabilization efforts, and that were not recoded on the plan map (discussed below).

Additional architectural details of Kiva D come from two unpublished maps — one hastily sketched and one quite detailed, drawn with some rudimentary drafting tools — each of which appear to be in Morris's own hand. Although they are unsigned, he was the only trained archaeologist on site during the summer of 1917 and is the likeliest author of the maps. The sketch map clarifies the location of Kiva D within the East Wing of Aztec West and places it within the surrounding roomblocks that were being excavated concurrently. The detailed map (**Fig 4.9.** and redrawn in **Fig 4.11, 4.12**) appears to have been 'idealized' rather than wholly accurate. Thus the kiva and bench are shown as a perfect circle, the pilasters are equal in dimension and equidistant in spacing, while the slight variations in masonry and irregularities inherent in vernacular architecture have been smoothed over. There is no way at this point to determine the accuracy of certain measurements, though this may be possible through further photographic analysis.

Close comparison of the photographs and maps has provided particularly rich information about Kiva D and demonstrates the value of this approach overall. The photos reveal that the idealized map fails to capture the architectural dimensions of the southern recess, where the bench recedes, nor does it capture the slight offset of hearth when juxtaposed against the ventilator opening. Both of these are visible in the

photographs. The absence of a keyhole-shaped southern recess (as we see in Kiva D) is a phenomenon associated with earlier 'Chacoan' style kivas (see Cameron 1999, after Lister and Lister 1987), and other traits of Kiva D (eight pilasters, subfloor ventilator system) are also in keeping with a kiva type clearly associated with Chaco-style architecture, while tall masonry pilasters are more often associated with Mesa Verde style kiva construction. No significant architectural remodeling is apparent (as clearly occurred in Kivas H and K at Aztec). It is important to note that while the map fails to convey some of the architectural realities in the kiva, it is still a highly valuable piece of documentary evidence. However, corrections to Morris's maps based upon photographs are significant, particularly in light of the fact that modern NPS maps follow Morris's idealized version and therefore continue to plot some of the details inaccurately. Careful study of the photos allows for these corrections now despite the fact that Kiva D has been backfilled for over 25 years.

Why is this work useful? The careful analysis of photographs has allowed for positive identification of those that show Kiva D and rejection of those that were mislabeled. The combination of photographs and a redrawn plan opens the possibility of 3D reconstruction of the original structure. Most importantly, however, this excavation of the data recorded for Kiva D enables a reconstruction of the narrative life history of the building. This kiva was built to almost the exact specifications of the late-11th - century kivas, Kiva H, I, and K, at Pueblo Bonito in Chaco itself. Kiva D resembles those



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Bonito. At the same time, certain unique features have emerged from re-consideration of the data, including the recognition of a raised, plastered floor feature on the southern half of the kiva (unremarked on in any of the correspondence related to Kiva D). The analysis conducted here of the photographs and Morris's map distinguishes Kiva D as a unique architectural feature at Aztec, one that simultaneously emulates other Chacoan architectural features.

Dating

The stonework of Kiva D is characterized as 'course-patterned masonry' and appears to conform, in places, to either 'Non-conforming Type 3' (**Fig 4.12 - top**) or 'Non-conforming McElmo' (**Fig 4.12— bottom**) (Brown and Paddock 2011:212-214). The former type is the earliest type of masonry found at Aztec West, dating to 1100-1115/1120. The latter has a much broader use-period and dates between 1110 and 1225+. Kiva D's masonry, though in places obscured by plaster and with numerous facing-stones impacted by weathering and the final burn event, appears to align with either of these two types. The entire southern portion of the East Wing of Aztec West is characterized by Brown et al. (2008) as having been constructed c. 1140-1200. Determination of construction dates based upon masonry is often difficult (cf. Wills 2009; Lekson 1984). Mitigating factors that affect the diagnostic potential of masonry types include the impacts of remodeling, available local material types, speed of construction and skill of labor. Fortunately, we have a suite of *other* data that help us to bracket plausible construction and occupation dates for Kiva D.

Dendrochronology was in its infancy at the time Morris first began work at Aztec in 1916. Through correspondence, however, the positive working relationship between Morris and A.E. Douglass (the founding father of dendrochronology) can be traced. Their collaborative relationship was a seminal moment in Southwestern archaeology (and in the field as a whole; Nash 1999). Morris collected very few samples during the 1916 season, and of those almost none returned a usable date. He had better success with refined techniques and technology in 1917. Unfortunately, no recorded tree-ring dates exist for Kiva D, and the photographs of the roof fall seem to indicate that the beams were removed prehistorically (although this scenario is unlikely given the extent of the burning), or that the fire that ended the functional life of the kiva burned hot enough to completely consume the vast majority of the wood found in the structure. The former theory is unlikely because Morris indicated that there was no closing material from the roof (adobe, clay) in contact with the floor surface when it was excavated. Rather, ash, soot, charcoal, artifacts and the human remains were immediately on the floor. If the roof had been disassembled prior to the final conflagration, the floor would have been covered with raw, unburned roofing materials, which was clearly not the case. The roof of Kiva D burned with much, if not all of its beams in place.

No wooden elements have been preserved from Kiva D in photographs or as samples at the Tree Ring Laboratory or AMNH. At the time of excavation, Douglass had yet to develop a precise method to date samples of juniper. Thus, any samples collected

might have been lost or simply discarded later by Morris or Douglass. An alternative to

**Type 3 Masonry – Aztec West Ruin
ca. A.D. 1100-1115/1120**



Classic Type 3



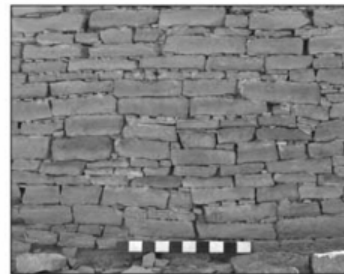
Non-Conforming Type 3

- Present in earliest core/veneer masonry in and around Kiva L, and intermittently throughout northern portions of West Ruin
- Tabular sandstone with snapped, scabbled, pecked, or abraded faces
- Coursed-patterned masonry with bands of rectangular stones alternating with semi-coursed bands of smaller, thinner, tabular stones and chinking

**Type 4 Masonry– Aztec West Ruin
ca. A.D. 1100-1110/1115**



Classic Type 4



Non-Conforming Type 4

- Earliest core/veneer masonry on walls in and around Kiva L at West Ruin
- Small tabular sandstone with snapped, scabbled, or abraded faces
- Coursed masonry with very thin mortar joints and infrequent chinking in horizontal joints

**McElmo Masonry – Aztec West Ruin
ca. A.D. 1110-1225+**



Classic McElmo



Non-Conforming McElmo

- Dominant style in core/veneer walls throughout West and East Ruins
- Rectangular sandstone blocks with pecked and abraded faces
- Coursed masonry with medium thick mortar joints and frequent chinking in vertical and horizontal joints

Fig 4.12 Masonry Types 3, 4, and McElmo found at Aztec West. From photographic evidence, Kiva D exhibits Non-conforming Type 3 and Non-conforming McElmo (top right and lower right). Photographs used (WITHOUT PERMISSION -YET) From Brown and Paddock 2011.

this argument is that the beams in Kiva D were burned to such a friable state they no longer maintained enough cohesion to be tested (**Figs 4.5 and 4.6** show few if any intact beams near the floor). Dendrochronological analysis is therefore unfortunately impossible.

It is fortunate that records exist to allow a new analysis of data. An assessment of the rooms surrounding Kiva D and Aztec West as a whole, helps us learn when the Kiva was constructed and what its state might have been at the time of its final burning. In general, the first rooms constructed at Aztec (the North Wing, Center Section, c. 1090-1120) were constructed with pine or fir tree species brought from higher elevations and significant distances (40-100 km), in the Chuska and San Juan mountain ranges (Drake et al. 2014, Windes and McKenna 2001:140). Later additions to Aztec West often utilized construction materials that originated closer to home. This included the more readily-available juniper, the tensile strength of which, durability, and spanning abilities paled in comparison to pine and fir types (juniper is a shorter, knottier, gnarlier wood) (Windes, 2009; Brown and Paddock 2011). The gradual switch from mountain species to local juniper can be seen in the progression through time of cutting dates and the association of juniper with later McElmo style masonry. This is particularly in evidence in the southern portions of Aztec West and throughout Aztec East, built during the 12th and 13th centuries. In these areas early construction, that of the first half of the 12th century, usually consisted of construction materials that included imported fir and spruce. This was primarily associated with the northern/central portion of Aztec West. 'Later' construction that occurred during the

13th century utilized local juniper, as primarily found in the East and West Wings and southern portion of Aztec West.

While there are no direct dendrochronological dates available from Kiva D, the room immediately to the south, Room 31 (**Fig 1.2**), has an associated cutting date from a doorway lintel of 1112 (Windes 2009). Room 31 *may* have been built at about the same time as Kiva D, because it would have been structurally important to 'block-in' or surround the circular masonry of Kiva D. Such rooms bulwarked the circular walls of the kiva and supported its weight. In this case, Room 31 was integrated into Kiva D's construction by supporting its southern vertical ventilation shaft (**Fig 4.2**), which was built into (or near) the north/south dividing wall between Rooms 30 and 31. The cutting date of the beam taken from this room conforms to dates associated with Type 3 non-conforming masonry. However, as is the case with dating solely by masonry type, tree-ring dates are also not entirely reliable. In this instance only one date is available, and it comes from a door lintel, categorized by Windes (2009) as 'PSF', or undifferentiated pine/spruce/fir, a prime species for construction that is both difficult to acquire and long-lasting. Consequently, beams of this species were highly prized and often recycled from older parts of the building as they fell out of use (Windes and McKenna 2001:123).

From their comprehensive study of some 4400 tree ring samples from Aztec West, Brown et al. (2008) determined that Kiva D and much of the southern portion of the East Wing were most likely constructed *later* than the date suggested by the masonry type and single tree-ring date. Namely, they suggest that Kiva D and its surrounds were built c. 1140-1200 during the primary McElmo phase of construction as

an addendum to the slightly earlier portion of the East Wing that is immediately to the north of Kiva D. This theory is substantiated by a clearly 13th century assemblage on the Kiva floor. The open question is whether Kiva D was possibly built with the East Wing addition to the north (c. 1120) and then blocked in at a later date, was perhaps remodeled, was consciously built in an archaizing architectural style, or simply was built in a mishmash of styles in the mid-12th century. The available architectural and artifact data offer no definite solution, but in comparable E-shaped great houses (e.g., Wijiji, Kin Bineola) the 'wings' often originally contained Chaco-style kivas that might have been remodeled at a later date.

Function

Comparable data from kivas constructed and used during the early to mid Pueblo III period/McElmo Phase, c. 1140-1200, will help to develop a hypothesis of how Kiva D may have functioned during its use-life. Kivas — particularly those built and used during the PII/PIII period — are central to the debate surrounding 'ritual' vs. 'domestic' roles in Pueblo life (Lekson 1988; Smith 1953; Adler 1993). In an unpublished note (CUMNH-311) Morris described Kiva D as:

...burned before its original contents were removed... [artifacts]... were scattered about the room. Quantities of charcoal covered the floor. The adobe from the roof was fused in place and in others burned to the consistency of brick. The space above this was filled by fallen masonry (CUMNH_311).

Morris clearly viewed Kiva D as a moment frozen in time that captured daily life. Utilitarian items collected from the floor included axes, a hammerstone, an arrowhead, and an arrowshaft straightener. A basket on the bench contained meal — possibly corn

— that demonstrated either food consumption or preparation. This may have included cooking, as there were no mealing tools found. At least four whole or partial corrugated vessels (Morris calls them “coiled”) were found on the floor; these were functional storage and cooking vessels. A cache of four axes atop the ventilator, near where a large sandstone slab was found, may represent a tool sharpening activity area, where axes were re-tooled and sharpened in preparation for use in tree-felling.

Enigmatic artifacts — a cache of bird bones on the kiva bench, and at least two bowls tucked away into niches — may have had a less utilitarian purpose. Additionally, Morris describes some of the more unusual finds from the floor surface:

There is another series of bird bone tubes ranging in length from 1/4 to 4 3/4 inches. These also are carefully cut, smoothed, and polished, the main point of difference from the preceding group being the much greater diameter of the tubes. These are not so frequently encountered as are the more slender tubes. A number were found in Kiva D, lying side by side, each with the remains of a cord running through it. From their position and the presence of the decayed string it is probable that these tubes had been bound side by side in the form of an ornament or breastplate. Some of the shorter tubes were beads, strings of them having been found about the necks of certain skeletons (Morris 1919:42).

In one other instance, the nearby room 41 (two rows north of the kiva), dozens of bird bones were found associated with a particularly rich burial. These two occurrences constitute the bulk of bird bone artifacts at Aztec. In most cases, the ends of the long bones were severed and holes were drilled in order to string the bones together. In some instances they were bundled or tied together with fiber. In his 1939 monograph, Morris noted that bird bone beads and tubes were nearly absent from all La Plata sites, whereas they had been plentiful at Aztec. Though he does not refer specifically to those found in Kiva D, Morris remarks, “There can be no doubt that bone

tubes were used in many ways that are not apparent. Many of them unquestionably were beads. In the Aztec Ruin was a found a strand of them, strung to alternate with canyon walnuts..." (Morris 1939:123). Walnuts are a non-local crop. The significance of the bird bones in Kiva D remains enigmatic for now.

Michael Schiffer outlines eight key formation processes that impact floor assemblages like the collection in Kiva D. These include 1) primary refuse; 2) abandonment refuse; 3) *de facto* refuse; 4) ritual deposits; 5) post abandonment uses; 6) secondary refuse; 7) post-occupational collapse; and 8) post-occupational disturbance (1995:206-207). Based upon Morris's description, it appears that Kiva D was in regular use until the catastrophic burning and collapse of the roof (this event may or may not have been associated with the five human remains found on the kiva floor, as discussed in the next section). Morris's written account (**Fig 4.13**) is supported by the photography. There is no way to be absolutely certain of the length of time between when the bodies were placed on the kiva floor and when the fire started. It appears, however, that no time or particular care was taken to arrange, vacate, or systematize the assemblage on the floor before the kiva was burned with the human remains on the floor. Consequently, the 54 specimens collected that were in contact with the kiva floor and bench were likely *de facto* artifacts, sealed into place by the burning and collapse of the roof — where little or no time passed between events that would allow for any deposition (wind/water) to build up on the floor.

Kiva D.

Kiva D. had been burned before its original contents were removed. One adult, apparently a man, to judge from the heavy jaw and pronounced supraorbital ridges, and 4 children had been burned during the conflagration. The body of the adult lay against the east wall; those of the 4 children along the northwest side. It seems probable that these persons were burned alive or very soon after death, because the masses of charred flesh showed that decomposition had not consumed any appreciable portion of the bodies. Catalogue numbers 354-405 inclusive, were scattered about the room. ^{See chart} Quantities of charcoal covered the floor. The adobe from the roof was fused in places and in others burned to the consistency of brick. The space above this was filled by fallen masonry.

Fig 4.13. Transcribed and edited copy of Morris' original kiva notes. AMNH_105.

Closing

Purposeful, formal terminations or closings of kivas are well-documented throughout Southwestern archaeology (e.g., the Tower Kiva at Salmon (Akins 2008), Homolovi 2 (Adams and Hays 1991), Castle Rock Pueblo (Kuckelman 2000), historical analogs at Awatovi (Brooks 2016)). Closure in this context has to do with behavior that is exhibited immediately prior to the functional end of a kiva's use-life. In most instances, this phenomenon is associated with catastrophic burning that ended with the complete destruction of the kiva (Ryan 2015). In some cases, this is purposeful and associated with the kiva's retirement. Other fires may be accidental, though it has been demonstrated that pit structures are difficult to set alight (Lally 2005). Morris himself noted the relative dearth of burned structures in the Mesa Verde region and the tendency to abandon intact buildings after they were thoroughly cleaned out (Morris 1939:42). In some cases, a closing event can also include burial and/or purposeful manipulation of the kiva's material contents. All three of these occurrences are in evidence within Kiva D.

It is difficult to set a kiva on fire and sustain the conflagration long enough to consume the entire wooden superstructure and continue smoldering after the kiva's collapse. If this kiva roof was cribbed, it was made of hundreds of logs and resembled an upside-down, woven basket. If it had a flat roof, then far fewer large vigas would have been horizontally placed atop the pilasters. In either case, an opening near the center of the roof would have been used for ingress and egress. Additionally, in either case, the roof would have been sealed with mud and adobe to create a flat space atop the roof.

This insulated the kiva, protected the beams, and made the rooftop of the kiva a functional workspace. The consequence of this type of construction made it very difficult — as we know through experimental archaeology— to ignite, much less maintain, a fire in a masonry room with an intact roof.

Reconstructed rooms from Homolovi and Chevelon have both been burned under controlled conditions in order to determine fuel loads, air flow, temperatures and fire exhaustion under a number of circumstances (Lally and Vonarx 2011). Lally (2005) and Icove et al. (2015) have tried numerous methods to burn pueblo kivas and rooms and found that significant amounts of fuel piled into one portion of the kiva (near the low part of the ceiling) *could* start a fire, but a more effective means of burning one fully is to dismantle the roof partially (removing the closing materials and some of the top-most beams) in order to allow more oxygen into the structure. This method requires less secondary fuel to be placed in the structure.

Kiva D burned completely and catastrophically. This is apparent from the absence of visible roof-beams in the photo, indicative of sustained fire of such duration that it possibly heated the wood to such a temperature that it continued to smolder after the collapse of the roof coverage by the closing materials. The remaining wall plaster on the lower bench and upper lining walls is cracked and blackened in areas, and the heat was high enough (approx. 900 C) that some of the masonry cracked and crumbled (see Pilaster #1). Even after the roofing materials were removed and the floor swept clean by Morris's crew, the floor was stained visibly gray from the amount of ash directly deposited there.

At the time of the conflagration, the material culture of the kiva remained, as Morris believed, in the place where it had been used in the normal course of a day (Morris 1924a:212). In Kiva D there was no purposeful placement of materials as is most common when kivas are ritually “closed” (Ryan 2004). Most often, purposeful closing patterns show (for example) projectile points placed on the bench at each of the cardinal directions (Carhart Pueblo) (Baxter 2010), placement of animal or reptile remains as offerings (as at Champagne Springs) (Dove n.d.), Goodman Point (Kuckelman et al 2009) and Sand Canyon (Bradley 1992), or cleaning out of the kiva floor to leave the space bereft of any non-masonry contents such as those found at Wallace, Albert Porter, Salmon, Carhart, and Escalante Pueblos. Although the tower kiva at Salmon ruin (Pueblo III era) was also burned, has non-purposeful artifact placement and non-formally buried human remains (Akins 2008), Kiva D is extremely rare in its burning of de facto refuse.

Morris described (full quote above) the nature of the disposition of the human remains found in the midst of the badly burned kiva (CUMNH_ARCHIVES143). The five individuals discovered burned within Kiva D provide a conundrum to add to the puzzle of the artifacts. Morris himself was unsure what to make of their presence. In his letters to the AMNH during the summer of 1917, he attributed the human remains to a murder or purposeful entrapment of the people in the kiva, since he had never seen burned remains in such a context, and they were not in traditional burial positions (flexed or prone) with burial accoutrements (blankets, wrapping, pottery near the head). By 1919, he had apparently changed his mind and postulated that the individuals had been

cremated in Kiva D (Morris 1919:24). In 1921, he again re-assessed the situation and hypothesized the people had been trapped when the roof burned. He did not speculate whether the roof had accidentally caught on fire or purposefully been set alight.

Morris's ambivalence seems justified by the apparent lack of evidence available for interpretation. He seems to have taken limited notes at the time of excavation, few of the remains from the Kiva survived transport to AMNH, and the excavation was conducted with shovels by men who were relatively inexperienced with excavation in complex contexts. Early in his career at Aztec, Morris had targeted burials. He and Nels Nelson dug much of the Southeast Refuse Mound in an effort to find inhumations and — more importantly to their minds — the whole vessels buried with them. However, by 1917, Morris clearly demonstrated his indifference to human remains. “All human remains I made a definite point of getting rid of, with the exception of two wrapped skeletons...” (EHM 002/C11.D.1 #13). In all but these two cases, Morris shipped the remains back to New York via boxcar. The remains in Kiva D, however, were not assigned burial numbers — in 1917 Morris thought their presence in the kiva was either an accident or a murder, and thus they did not warrant “burial” status. This decision, coupled with their probable extremely friable state, almost guaranteed their loss to history. When Morris wrote his 1924 monograph on Aztec Burials, this lack of data was apparent. By 1924, however, he had again changed his interpretation of the five charred remains: now he believed the people to have been cremated after death rather than trapped and burned alive. This assessment came from “a glance at the catalogue” (1924a:212) and his recognition of the presence of some rush matting (traditional garb

associated with burials) found with some of the children. However, he did indicate that the vessels in the kiva were likely *not* burial offerings, but *de facto* daily refuse: a confusing juxtaposition.

The data that we *do* have with respect to the human remains are derived from Morris's descriptions during excavation. 1) An adult was “slumped” against the northeast corner, and four children were found together in the northwest corner. 2) The adult was thought by Morris to be male, based upon his supraorbital ridges (not nowadays considered the best means of determining sex). 3) The children were clustered together, although the brain and lower and upper jaw of at least one of the children was separated from the rest of the body and mapped individually.

Three important additional features are apparent in the photographs that augment our understanding of the disposition — ancient and modern — of the bodies (**Fig 4.5, red arrows**).

1. There are two boxes (one on top of the lining wall, one obscured behind the man to the right) filled with material. We know that no dendrochronology samples were sent to the Tree Ring Laboratory, and no samples of charcoal appropriate for dendrochronological analysis are visible within the remains (indicative of the high temperatures reached by the fire). What is in the boxes?
2. Morris's crews generally excavated rooms and kivas horizontally, particularly when they approached a floor surface. This method is apparent in other photographs as well as Morris's notes. Why in these images is there such an obvious, irregular extrusion of soil against the bench?
3. It is clear that the foreground of the photos shows the most recently excavated soil (the process was for the men on the floor to shovel up to higher levels and then a second crew would shovel that soil out) — the soil nearest the floor is clearly darker and more consolidated than the soil above the floor (the roof fall).

Taken all together, it appears that the men are working in a particularly carbon/charcoal rich layer of deposition — not unexpected given the fire that consumed the kiva. However, this dark soil appears to be coming from the right side of the photo, which is associated with the enigmatic bump (**Fig 4.5**, bottom red arrow). The secondary architecture and niches with the map of this area of the East Wing align in such a way as to make it clear that the photo is taken facing to the northeast — which means (based upon the original sketch plan) that the bump in the soil is the location of the male adult found “slumped” against the bench. The flesh of the adult and children had been “reduced to charcoal by the conflagration” (Morris, June 24, 1917 AMNH 105). And in the boxes appear to be masses of charcoal. Combined, these data seem to indicate that Morris documented thoroughly (at least by photo), the recovery of at least some of the human remains found in Kiva D. This fits into the overall pattern of Morris's photography: of the 900+ classifiable images Morris took at Aztec, nearly 1/3 are of burial contexts (approx. 1/3 are wide-angle site-encompassing shots or general photos of rooms, and the other 1/3 are artifact close-ups, particularly of perishable items). It now seems likely that Morris did take photographs of the human remains at Kiva D, even as he did of the many explicit burials he excavated; we may just not have been able to recognize them as such until now.

I was fortunate to locate portions of three of the children documented in the photographs in January 2015 at the American Museum of Natural History. Physical anthropologists cannot agree on an assessment of these remains (about 25 small pieces, <10 cm square, some with consolidants or other stabilizing treatments applied at the

Museum of which there is no record and which were not readily identifiable upon analysis). What is clear about the specimens is that they contain burned human bone in unidentifiable matrices and that they adhered to various types of woven or matted garments. This latter find might seem to indicate the presence of typical burial wrappings for at least one of the children. The matrix in which the burned and carbonized bones were held was, in some instances, vitrified and glassy. I contend that these are the same remains that Morris described as “carbonized flesh” and which adhered to his shovel during excavation.

The characterization is disputed by Deborah Martin (personal communication 2015) and Dennis Van Gerven (personal communication 2015), who have never seen evidence at an archaeological site of carbonized human remains and believe there must be an alternative explanation. Both experts asserted that bones and skin will be reduced to ash or charcoal and tiny fragments, but they will certainly not calcify or carbonize. Modern forensic specialists, however, document numerous (non-archaeological) cases in which human remains can, under the right circumstances, carbonize, calcify, vitrify, boil, fissure and consolidate (Symes et al. 2012). Further examination by specialists in forensic fire analysis may help to finally explain the heat, fuel load, oxygen and carbon monoxide level and duration of a fire that would be capable of creating remains like those currently in AMNH. Such an analysis might help to determine if the kiva was purposefully set alight, whether secondary fuels were added, the proximity of the fuels to the remains (were they placed against them, or did the roof collapse, etc.), in order to determine how Kiva D ended.

I have asked a professional firefighter — an arson investigator — to view the photographs of samples, site photographs and relevant data, and to suggest the general conditions that would be necessary in order to reduce human flesh to charcoal (Joshua Bender 2014, personal communication). In the case of Kiva D, the fire expert believes that an accelerant would not necessarily be used, but that the most effective (and destructive) means by which the human remains would be carbonized would be if the roof collapsed and smoldered, and the bones and fabric continued to burn at low temperatures in an anaerobic state. These low but prolonged temperatures could account for the drying and splitting of bone, which may have happened with at least one of the children's skulls when it separated (split open) from the brain. Such a low temperature, long-term, anaerobic burn could, the firefighter believed, also account for the preservation of the perishable objects (clothing and matting) around the skin.

While it is clear that at least one of the children was prepared for burial and wrapped in least two types of fabric — cotton and woven matting placed into context with their midsection — it cannot be said with certainty that all of the children and the adult were deceased at the time of the inferno. Morris's original hypothesis was that these individuals were either trapped in an accidental fire or were the victims of warfare or other treachery. If one or more of the individuals were alive at the time of the fire, the arson investigator suggested based on modern analogy that the children would group together away from the hottest part of the building. If anything were available, such as a blanket, or piece of clothing, they would cover their heads with it. If an adult was with the children and related to them, the adult would be found in close proximity,

perhaps attempting to shield the children. If the adult was not related to the children, he would physically distance himself or leave them behind in an effort to escape or prolong his own life (Joshua Bender, personal communication 2014).

There are archaeological examples of individuals trapped in fire that tend to corroborate this pattern. At Homolovi an adult was found with his head in the ventilator shaft, apparently in an attempt to get fresh air (LeBlanc 1999). This kiva was not so thoroughly burned, and he may have smothered. An entire extended family may have suffocated in pithouse B at 29SJ1360 (McKenna 1984:352). In the case of Kiva D, it is likely if the children and adult were alive, they would have moved away from the sources of air if the fire was rapidly consuming the available fuel — the areas of highest heat — but would also have avoided the oxygen-deprived area farthest from the ventilator opening. These behaviors would not change significantly if the individuals succumbed to carbon monoxide poisoning prior to burning in the heat. It is suggestive that these cooler but still-aerated areas are indeed the spots in the kiva where the bodies were found.

Burials in Ancestral Puebloan sites — and particularly those of the PII/PIII era (1050-1300) — are common. However, burials in great houses are not (LeBlanc 1999:164). Mortuary studies from contemporary great house sites indicate that burials are most commonly associated with middens and subfloor contexts within rooms (Akins 1986; Martin et al. 2012). In cases of violence, human remains could be left scattered in room or kiva contexts, though often (but not always) these remains were partially

disarticulated or were clearly thrown down the open hatchway (Kuckelman et al. 2002; Turner and Turner 1999). It is rare for primary burials to be found in burned kiva contexts.

At Aztec West, where sixteen kivas were excavated, there were no other primary burials on kiva floors. A burial in Kiva X, possibly of a child, was described as having been found in refuse accumulated above the floor (though there are no photographs or further documentary data to support this assertion). In all, there were seven incidents of human remains found in kivas at Aztec.³ In all cases, the other human remains in kivas at Aztec were in secondary or disturbed deposits, all were partial remains, and all were above floor contexts.

Human remains discovered in fill above floor (often unburned) kiva contexts are found throughout much of the Northern San Juan. Studies of mortuary practice that encompass over 1000 sites indicate no cases of purposeful cremation on kiva floors of great houses in the early PIII periods (Akins 1986; Martin et al. 2012; Turner and Turner 1999). The example previously thought to provide the best comparison is the Tower Kiva complex at Salmon (Irwin-Williams et al 1980). Here publications initially indicated some 30 or more people who were trapped and burned to death on the roof of the kiva. This interpretation has since been called into question. Akins (2008) asserts the kiva burning happened post-mortem and in multiple episodes over the life of the structure rather than as a single cremation event. The confused analysis leads LeBlanc (1999) to throw out Salmon as a viable example of kiva-cremation death.

³ Aztec (Kiva B (Morris 1924a:146) Kiva S (1924a: 193) Kiva A.1 Annex (1924a: 204) Kiva A.5 (1924a:211) Kiva A.7 (1924a:211) Kiva D (1924a:212) Kiva G (1924a:213)

There is only other example of a possible complete, primary inhumation that was in close proximity to the floor of a kiva and which suffered what appeared to be a purposeful burning event. It also comes from Aztec, but was not classified as a burial (i.e., assigned a burial number or included in Morris final table) (Morris 1924a:225).

Storm-deposited sandy earth covered the floor of Kiva G to a depth of from 6 inches at the center to 3 feet against the walls. From the south side to the center this material was separated from the fallen ceiling by a stratum of charcoal and black earth from ½ to 3 inches in thickness which yielded a great many broken beads and fragmentary ornaments of abalone and other kinds of shell. At the time of excavation no observations were made which suggested that the numerous articles of adornment in any way pertained to a burial, but during a subsequent examination of the charcoal there were found a number of granules of a porous iridescent substance identical with the more bulky pieces of charred flesh from Kiva D. Therefore it may be surmised that there was a burial in Kiva G. If so it must have been that of an infant or small child, as there was no evidence of sufficient heat to have incinerated the bones of an adult beyond recognition (Morris 1924a:213).

Unfortunately, this is the extent of information available about Kiva G: the remains were not preserved, and there are no photographs or additional notes. But it is tempting to speculate that there was more than one instance of disposing human remains in kivas and burning them at the end of Aztec's occupation. The fact that a vast majority (85%) of those found in the burned kivas are children is intriguing. Children in Puebloan burial contexts sometimes suffered from significant/terminal diseases (Kunitz and Euler 1972; Martin 1994; Stodder 2008). We can thus “link these mortality/morbidity patterns to the combined effects of childhood diseases such as diarrhea and parasitic infections, acting in concert with dietary protein and micronutrient deficiencies. Many infants and children sickened, some from birth, with both acute and chronic illness leading to the early deaths of many” (Palkovich

2012:246). In general, “Ancestral Puebloans did not maintain separate cemetery areas; rather, the dead return to the underworld in Puebloan Cosmology” (Ortiz 1969). Occasionally there would exist interment within pueblo living spaces such as rooms or kivas or the village trash middens (Palkovich 2012:249). However, it is very uncommon — even rare — for complete sets of human remains to be interred in a kiva at any time (Kiva S is questionable since it was possibly redeposited (Morris 1924a:193)). This is born out at Pueblo Bonito where only two burials were recorded in kivas, and these were of an isolated tooth and an isolated femur (Akins 1986, see Chapter 5 for additional data on Chaco burial locations). Thus Kiva D is anomalous both at Aztec and more broadly. Its singularity necessitates further analysis of its contents and context as well as the social history of the region.

V. Kiva D in Context

Kiva D is unusual on many fronts. It was built of 'hybridized' architecture incorporating both 'Mesa Verde' and 'Chacoan' traits. Evidence of remodeling comes only from multiple plasterings on the wall, though it may have been constructed and used throughout the 12th and 13th centuries. It possesses unusual floor features, including a vertical ventilator between two room walls, along with a purposeful, plastered adobe floor in an arc around the hearth in the southern 1/3 of building. Such a plastered floor is not found in any other kiva at Aztec or any excavated kiva in a Chacoan great house. The area around Kiva D was poorly built, constructed after the East Wing section of the structure was built immediately to the north. The room and kiva floors for

this area were two feet higher than in the block to the north, and it appears the entire section was constructed atop trash and possibly earlier structures that are associated with Chacoan pottery (Morris 1928:294). This corroborates Brown's (2008) contention that the structure may have been built as late as 1140 and used continuously until the late 13th century. An oft-cited, but incorrect typo in Morris's 1919 Report confuses the final occupation/closing of the East Wing of Aztec West. Here is the quote:

The East Wing was abandoned long before some other quarter of the building ceased to be inhabited, and subsequently the rooms which compose it were used as repositories for refuse, that is, house sweepings, ashes, animal bones, potsherds, etc. Some of the chambers contained as much as ten feet of this material. Burials were found in rooms 1, 2, 18, 29, 33, 41, 45, 52, 56, and Kiva B. There were also bodies in Kiva D, but these were the remains of individuals who were cremated during the conflagration which destroyed the roof of the council chamber. Fire had consumed the ceilings of all but four of five of the rooms which have been excavated thus far (Morris 1919:17).

This last sentence is incorrect. It should say, "Fire had consumed the ceilings of all but four *or* five of the rooms which have been excavated thus far." That means that rather than Morris describing four rooms that had burned in the East Wing, he meant to explain that approximately 75 rooms and eight kivas had burned. Thus, Kiva D was at the epicenter of a burning event or events that consumed almost the entirety of the East Wing of Aztec West. The significance of this burning event remains an open question. Great houses were not often burned — or at least burned on the scale seen at Aztec West (**Fig 4.14**).

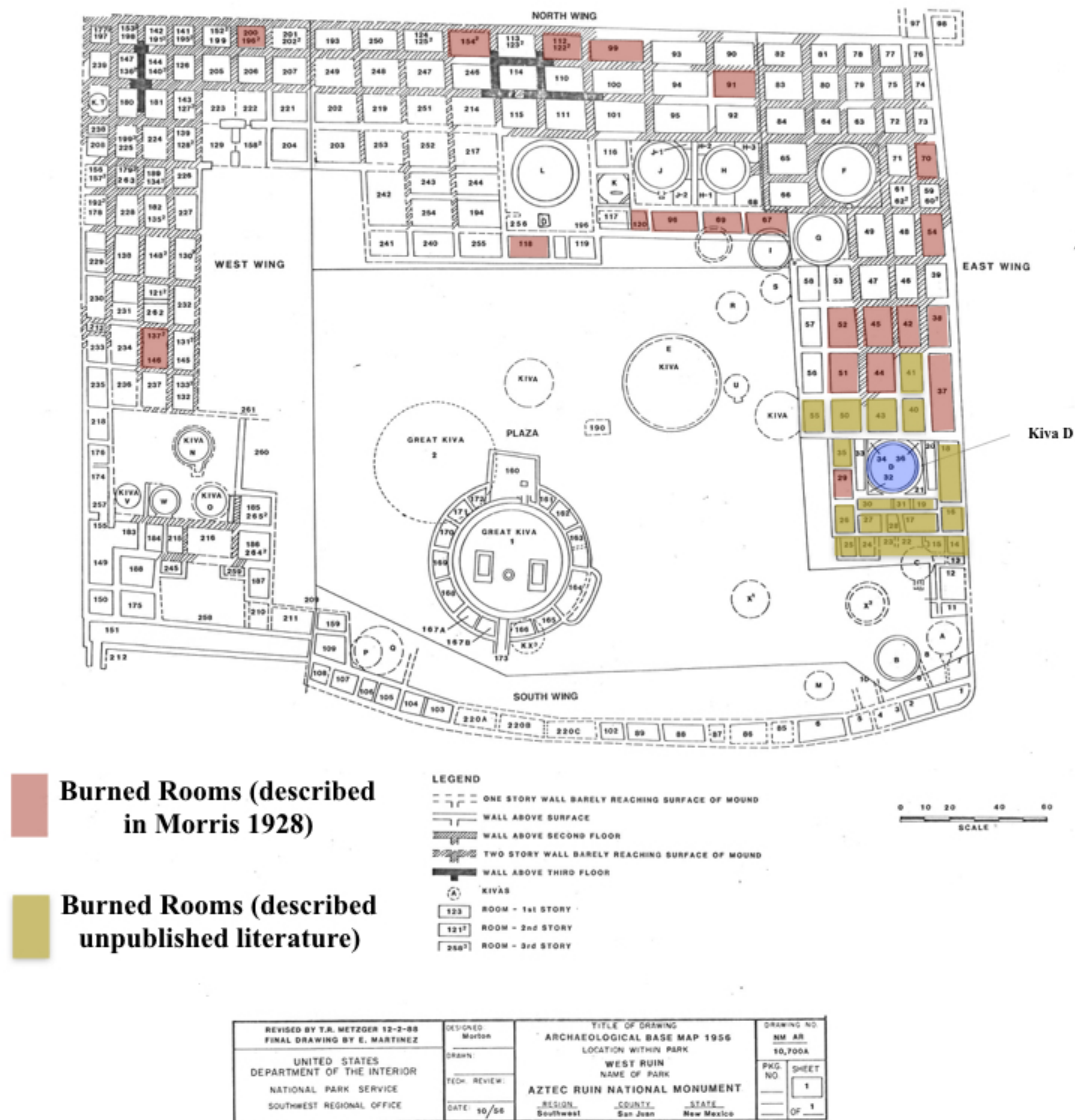


Fig 4.14. New Map of East Wing showing probable burned rooms

Systematic surveys have not been done, but it seems clear that only portions of excavated great houses experienced extreme burning events, and very few of these occurred in buildings associated with Chaco Canyon (LeBlanc 1999:180). Exceptions to the rule include the Salmon tower kiva, but even in this case, the kiva burning was a relatively isolated phenomenon that did not impact the rest of the building.

Even more unusual than the burned rooms were the five individuals who were found in Kiva D. Morris indicated that the area around the kiva had been abandoned and trash-filled for some time before the final conflagration. However, the clean floor, de facto refuse and the human remains found immediately atop the floor indicate that Kiva D was in use — and likely normal daily use — until the final interment and burning. It is not possible to calibrate exactly when the other rooms in the area were filled with trash and burned, but it seems likely that this “final event” (Ryan 2010) coincided with a general abandonment of this area of the building, apparently at the end of the 12th century. If this were a single-event mass-burning of a significant portion of Aztec Ruin, these five individuals were likely witness to Aztec West's final days and may have born witness to its final collapse, invasion, or ritual closing.

There are two very different ends to parts of Aztec — a portion of which was burned completely (East) and a portion (West) turned into a burial ground. This would seem to support Morris's theory that Aztec West was re-purposed and abandoned incrementally, with the West Wing falling out of use first and turned over to burials, while the East Wing continued to be occupied — though some rooms were turned into burial chambers (Room 41), and others filled almost entirely with trash. It may have been this later occupation whose inhabitants were responsible for, or victims of, the final conflagration.

There is some speculation that *any* burial associated with a kiva was atypical and thus likely resulted from accident, violence or witchcraft rather than natural death (cf. Darling 1999 and Walker 1998). If this is the case, then it is possible to speculate that

Aztec West did not fade slowly but experienced a punctuated and final end. In any case, the detail of Morris's records allows us now to recreate a much clearer sense of Kiva D. Built in a transitional style with certain unique architectural traits that allow us to date its construction and continuing use with some confidence, it seems to have continued serving a multifunctional purpose until it was destroyed in a super-hot, anaerobic conflagration. During that fire, four children and an adult were burned so thoroughly that the skull of one child exploded. Although we cannot be sure if they were still alive or already dead when the fire began, these individuals were not buried according to usual practices.

Analysis of Kiva D indicates support (with minor revisions) of Brown's suggestion (2008) that it was constructed early and with strong referent architectural ties to typical Chacoan construction as seen at Pueblo Bonito. Kiva D is unusual because it includes features that resemble traditionally 'Chacoan' and 'Mesa Verdean' kiva features (Cameron 2005), but it did not exhibit any significant evidence of remodeling over its 150-year use life (beyond replastering of the walls). The human remains and artifact assemblage on the floor of the kiva are highly unusual for the region and time period and may signify a perturbation in standard mortuary practice. Indeed they may reflect an even more sinister event that resulted in multiple casualties in a limited period of time. This may include disease or violence, tied both to the death of the individuals and the kiva burning.

The artifacts associated with Kiva D are rich and varied and represent a variety of forms, functions and materials. From whole vessels stored in niches and placed on the

bench, it is apparent that those who used Kiva D curated and preserved vessel forms for multiple generations, including some stemming from distant regions of the Southwest (Fig 4.15). Utilitarian tools such as axes, awls and arrow shaft straighteners indicate the space may have functioned as a workspace, while the presence of dozens of bird bone

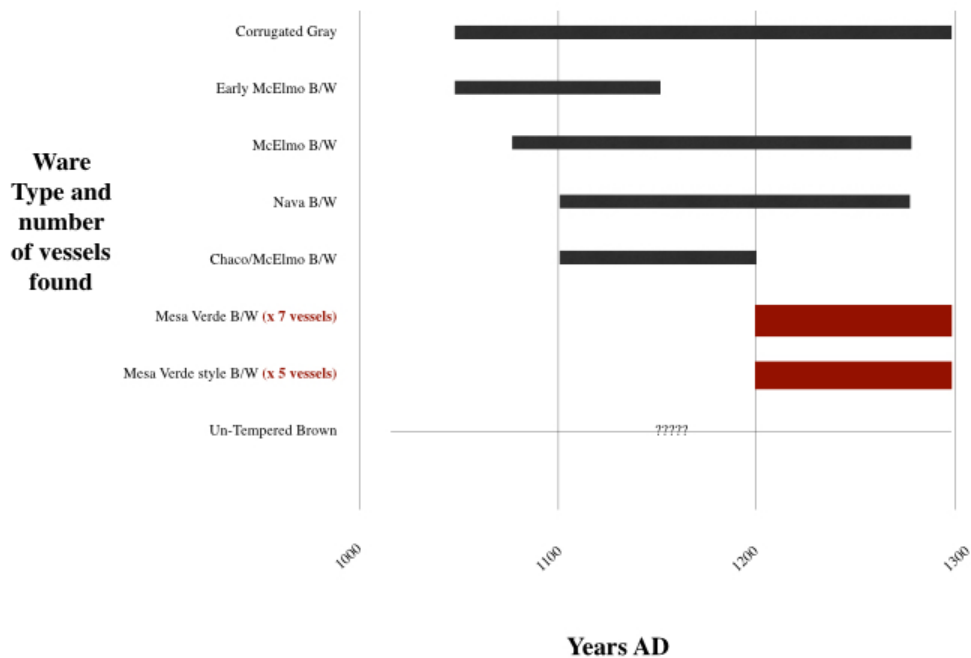


Fig 4.15. Date Ranges for Whole Vessels found on the Floor of Kiva D (all dates A.D.) After Reed et al 2005.

tubes, and the placement of four axes in the ventilator shaft, indicate behaviors that may have had ritual or other semiotic meaning. The assortment of usable artifacts present in such relative disarray (Morris describes the objects as “scattered”), along with baskets with food that were not placed in association with the wrapped burial bundle(s) calls to question the life history of this kiva.

For the first time, it is now documented that Kiva D and much of the West wing burned in an event or series of events that precipitated or resulted in the evacuation of that wing of the site as a whole. After this event, the rooms and kivas were not

reoccupied or remodeled, and there is no evidence of prehistoric looting. Thus, it appears that Kiva D represents a transitional architectural phase in Chaco-Aztec history and was likely in use for nearly centuries before the suspicious burials and final conflagration likely precipitated by arson.

Chapter 5: Death at Aztec

I. Introduction

During his work in and around Aztec West, Morris discovered, excavated and recorded 186 human burials. His final report on the human remains consists of 93 pages of text and 26 photos (Morris 1924a); it generally included descriptions of the individuals' location, age, position, orientation and accompanying objects. Based upon context and disposition (extended for Chacoan burials, or flexed for Mesa Verde burials) and associated pottery type (Gallup B/w for Chaco and Mesa Verde/McElmo B/w for Mesa Verde), Morris also regularly assigned each burial an ethnic/temporal identity that corresponded to the original builders (c. 1090-1150) or later occupiers (c. 1150-1300). The former, which represented a tiny minority of the burials found (8), he termed 'Chacoans.' To the latter group, 'The Mesa Verdeans,' (161) he ascribed identity based upon flexed positions and associated later pottery types (Chaco-McElmo B/w and Mesa Verde B/w) (Morris 1924a:225) (**Fig 5.1**). At the end of this publication Morris compiled a final table that included these assessments and a brief (five page) summary that discussed the patterns of mortuary practice he had identified. His final description concluded that "the last to die at Aztec were wrapped, with conspicuous frequency, as for burial and then laid upon the existent surface in abandoned rooms. The most logical explanation for such a procedure would seem to be that just before abandonment of the region those living had become so reduced by famine or pestilence or both that the dead were disposed of with a minimum of effort" (Morris 1939:92).

This chapter has five goals. It will:

1. Add to and edit (slightly) Morris's compendium. These data come from a re-analysis of archival data — mostly photographs from the Morris era (c. 1916-1934)⁴ — and re-assess and sometimes correct Morris's original information.
2. Add additional burial data that have been collected since Morris's work. These data come largely from grey literature and unpublished photos.
3. Provide a synthetic overview of the “new” list of burials from Aztec. This number now stands at 275 interments (+32 additional burials with no provenience which are included in the table found in attached excel file, but not in the analyses found in this chapter).
4. Compare these “new” burial data to other great house and contemporary sites within the region.
5. Define and categorize this burial set as “unclassified”, “typical,” “inconsiderate,” or “high status” — the latter two categories are applied to a minority of burials that do not conform to common mortuary practice. These atypical burials will be assessed and then placed into a larger context of Aztec political and social history at the end of the 13th century.

This chapter uses the double-headed approach of compiling new and comprehensive data (the addition of dozens of previously “unknown” burials) and detailed case-study analysis to demonstrate the rich potential of the archival data for a better understanding of Aztec's inhabitants and history. The reinterpretation of a portion of Aztec's population presented here adds to our understanding of the site's role in the post-Chacoan regional system. Additionally, the particular issues and problems emphasized in this chapter demonstrate the value of these data for future research. The chapter represents only the tip of the iceberg in terms of the potential of

⁴ In most cases there is no way to be certain that some of the photographs were taken by Morris — those that were re-analyzed are from the time when Morris was either the direct or off-site supervisor of Aztec, but some of them may have been taken by other archaeologists, custodians or workmen (most likely George Boundey, Chester Markley, or Oley Owens).

these data for augmenting or changing our understanding of Aztec and the people who lived and died there.

II. Part 1: Assembling Mortuary Data

Methods and Explanation

Mortuary data from Aztec are diverse and very confusing. Like the rest of this project, they derive from photographs, field notes, and published and unpublished reports. Information for approximately 65 of the burials (out of approximately 275 total) derives from data collected by archaeologists other than Morris. Some of these burials were located and described prior to Morris's work in 1916 (though few of those burials survive), by local landowners (e.g., Howe), workmen who were hired by Morris (e.g., Oscar Tatman), and workers at Aztec Ruins who were employed by the AMNH (e.g., George Boundey) and the National Park Service (e.g., Charles Steen, Chester Markley, James Maxon, Gordon Vivian, Roland Richert, Peter McKenna and several unnamed/unknown individuals). Each of these individual reports provides information essential for understanding Aztec population data, but each has its own vagaries and complications. In general, skeletal data recorded by these archaeologists were minimal and unsystematic.

Because many of the remains are no longer accessible due to loss or restrictions associated with NAGPRA, photographs are the best remaining source of additional information for these burials. Issues I encountered in working with these records include finding and identifying photos taken of burials, determining whether original lists of

photos described as burials match up with unpublished photographs, identifying the location where the photograph was taken, and analyzing the skeletal remains visible in the photographs. In the case of remains from Aztec West, complicating factors include: room-numbering systems were not standardized and resulted in occasionally duplicated room numbers; multiple room numbers were assigned the same space; 1st and 2nd stories were often conflated; and other perplexing issues deriving from correlations over a century of research. Additional issues arise from incorrectly labeled photos and initial (Morris-era) errors in skeletal analysis. The steps taken to create an accurate compendium of burial data will be discussed after an overview of Morris's primary source material.

The specific data used for the burial compendium collected by Morris and these archaeologists are included in Appendix 4). The appendix is lengthy: multiple individuals have collected information concerning burials and associated finds at Aztec over the years, and each has had his own method of recording, discussing, and occasionally publishing data. The appendix describes the process each employed and details some or all of the finds. It proceeds chronologically, and ends with data compiled by Lister and Lister in 1990 during a study that examined the NPS administrative history of the site. This latter work corroborates a number of the burials discussed in this secondary literature, but the Listers were not specific in their citation (often stating only "Morris Memorial Collection at CUMNH" or "Archives at AMNH"), so I cannot be entirely sure if I was able to duplicate their source material precisely or may have found additional material they might not have seen. Appendix 5 also includes additional data discovered

that cannot be correlated with any of the burials mentioned in the literature or other notes. For example, a letter from Howe to Morris in 1953 mentions a burial that the former found in a kiln just north of Aztec West. Such floating or incomplete data were added to the table for the sake of comprehensiveness, but I have not incorporated them in the final numerical analyses.

Earl Morris's Burial Data

Morris excavated three-quarters of Aztec West, a significant portion of the Annex, several small satellite sites (Lister and Lister 1990:42-43), and a number of rooms in the northwest corner of East Ruin. He published a descriptive report in 1924 along with a table (Morris 1924a:225) that condensed the bulk of his findings. These data comprise the only formally published account of basic mortuary data from Aztec. Cited on numerous occasions since (e.g., Martin and Akins 2001; Corbett 1962:31; Durand et al. 2010; Lister and Lister 1990:58; Harrod et al. 2012; Vivian 1959:53), it is the definitive work on Aztec burial data. I summarize Morris's conclusions here:

1. That 'Chaco' people founded Aztec West, built it in the likeness of Chaco Canyon, and buried or cremated individuals associated with its century-long history of construction c. 1100-1200. These burials were typed by the associated pottery (usually Gallup B/w, Red Mesa B/w (**Table 1.1**) and their extended, supine position. These individuals were mostly located in the refuse mounds immediately South of Aztec West. (**Fig 5.1**)
2. At the end of the 12th century, Aztec was abandoned for a period of time and afterwards occupied by 'Mesa Verde' people, who significantly remodeled the building and converted previously unused spaces into habitation, storage and refuse repositories. This group eventually turned much of Aztec West into a mausoleum — where large groups of people were placed in rooms and sealed off, pits were excavated into floors, or remains were placed in various levels of refuse-filled rooms.

3. The majority of burials of the 'Mesa Verde' type were of individuals who were adults or very young children at the time of death. These people were usually placed in the flexed position on floors of abandoned rooms. It was common for these burials to be gradually covered over with refuse as these rooms continued to be used after interment as trash repositories, turkey pens, or latrines. Often, but not always, doorways to these rooms were sealed and sometimes the rooms were burned, though it is unclear if these were associated events. Less frequently, pits were dug into floors, bodies were interred, and the rooms continued to be used as living space (and in some cases, the room was converted to a kiva (cf. Room 183).
4. The West Wing of Aztec West had the most burials, with four rooms that held as many as the entire eastern sector put together (**Fig 5.2**).

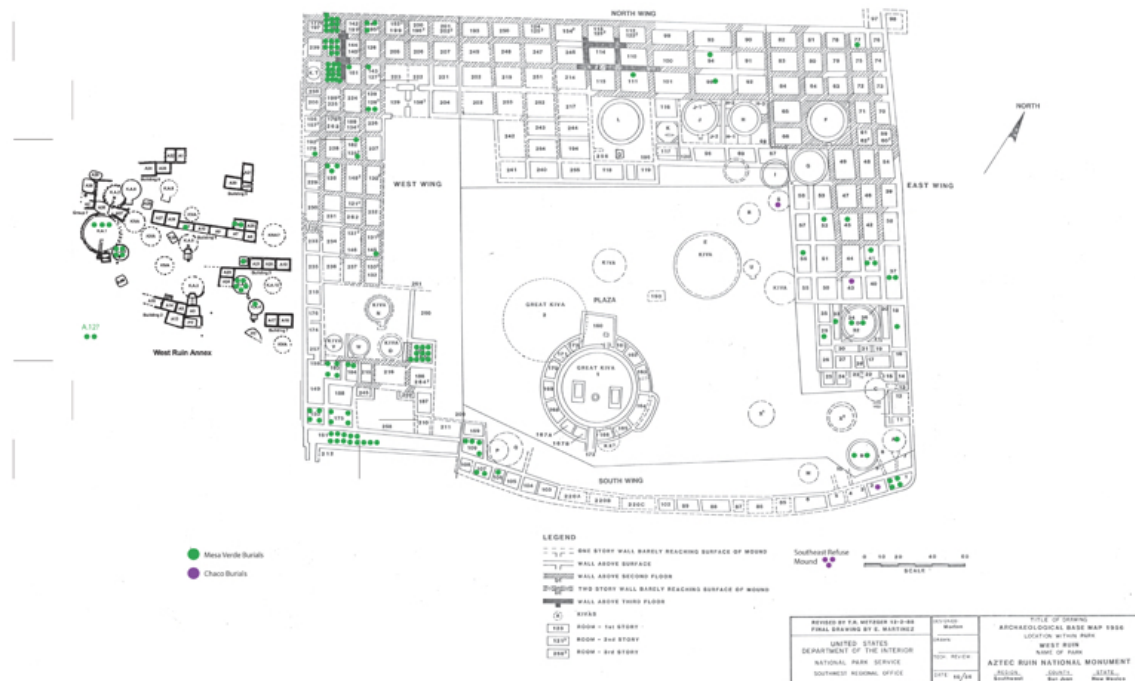


Fig 5.1: Map of Chaco and Mesa Verde era Burials

Data Recorded on Human Remains

In general, Morris assigned a burial number to a complete or nearly complete individual found in a position that suggested purposeful interment. Despite a relatively straightforward table at the end of his burials publication (1924a), Morris's data were not quite as clear as tabulated there. On a variety of occasions, "burial" numbers were assigned to partial individuals (e.g., a cranium found in Kiva S), or collections of mixed remains (e.g., in Room 41 an interment with only one burial number assigned it included between 13 and 15 individuals). When Morris did not consider an interment purposeful, burial numbers were not assigned (e.g., the five individuals found in Kiva D, discussed in Chapter 4). In the text, he described 143 numbered burials that represented 180 individuals, along with three unnumbered burials that included six individuals. Overall, Morris recorded 186 people buried in Aztec West, the refuse mounds and the Annex. Between the time when the burial report was published by Morris (1924a) and the final site report was written (1928), between eight and 15 burials were found by other employees (Sherman Howe, George Boundey, and several unattributed excavators). The reports for these burials have been found and added to Morris's data in the discussion below.

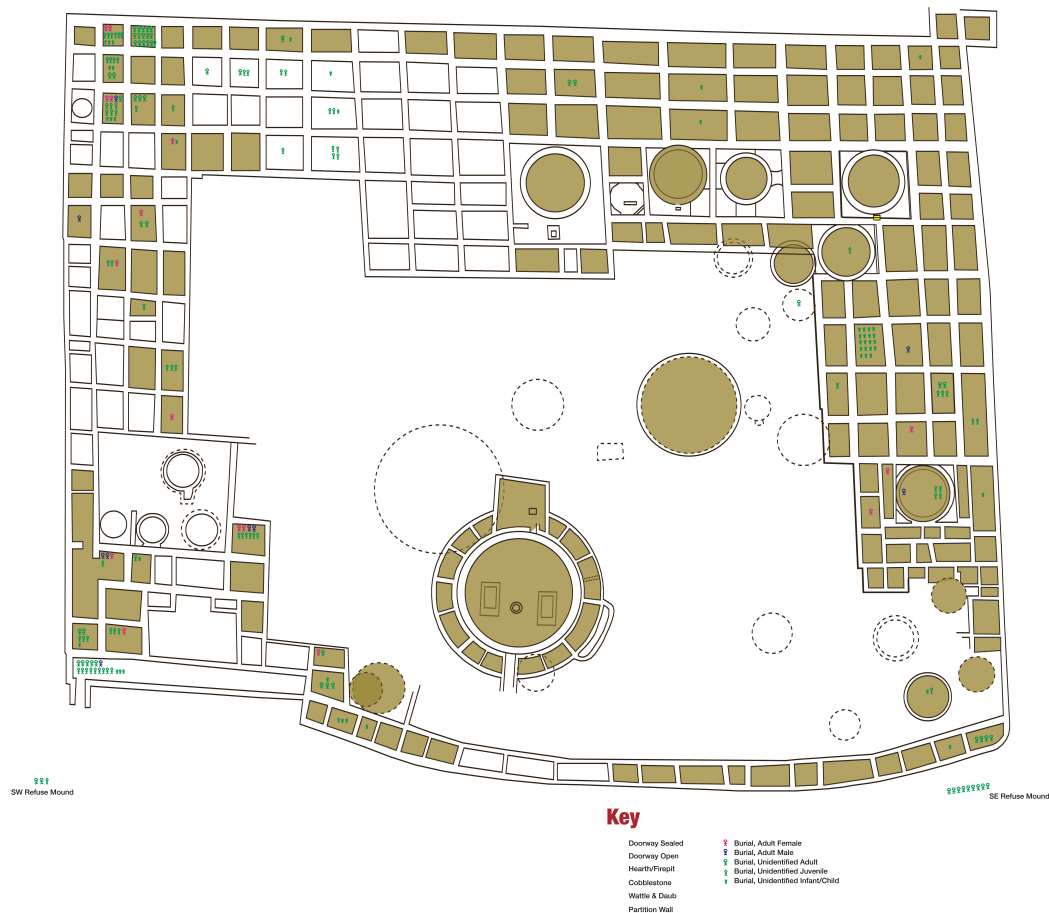


Figure 5.2: Map of Morris' excavations at Aztec West (in green) with all burials found represented.

In his synthesis, Morris documented age (adult, adolescent, child, or infant), position (extended, flexed, sitting, unknown, right side, left side), orientation (head to north, south, etc.), sex, location (first story, pit, within refuse, etc.), wrappings (cloth, matting, etc.) and associated grave goods. He did not specify age distribution, but in general, 'adult' is assumed to be individuals over the age of 18, and 'adolescent' (his least-used category, N=6), to be late teenager. Morris described 'child' burials with ages between two and 16. This clearly overlaps with 'adolescent,' but there is no definitive way to differentiate the two categories as he determined them, so I have kept to his

original age assignments. 'Infant' is generally considered to be less than two years of age. Morris did not identify any burials as fetuses. In one case (Room 41), Morris described 15 individuals who were 'child or infant.' I maintain this category in the analysis presented here, despite its awkward implications for data extrapolation. This seems preferable to arbitrarily grouping these individuals into an age category that may not be appropriate. In some instances Morris assigned 'aged' or 'young' to adult burials. These categories were preserved in the new data table generated for purposes of this chapter, but I have discarded them in favor of the generalized 'adult' category to conduct a basic age analysis here, as it is impossible to determine the age of these individuals to any level of specificity.

Morris was not trained in anatomy and physiology and was generally more interested in the associated pottery than human remains. With few exceptions, his letters to Clark Wissler at the American Museum of Natural History describe pottery collected, rarely (if ever) mentioning the burials from which vessels came. The current re-assessment therefore suggests revisions to some of his data, particularly with respect to age and sex, based on physical inspection at the AMNH, an examination of burial photos, and consultation with expert physical anthropologists (Ryan Harrod, personal communication 2014, Paul Sandberg personal communication 2014, Dennis Van Gerven personal communication 2015). These changes are indicated with an '*' in the data table that compares Morris's original work with the re-analysis of current experts. When a question concerning age or sex arose, at least two physical anthropologists examined the photographs to confirm my changes to Morris's data.

A key aspect of Morris's burial data is the assignment of temporal and ethnic associations to burials. Of his 186-person sample, he classified eight as 'Chaco' or 'likely Chaco,' (c. 1100-1150), 151 as 'Mesa Verde' or 'likely Mesa Verde' (c. 1150-1300) and 17 as 'unknown', although he tended to assume most of these were associated with Mesa Verde. The analysis presented in this chapter includes roughly 90 additional individuals, as well as a re-assessment of those presented by Morris. When material culture is evident in the photographs that were clearly associated with a burial, and the photographs show vessels that appear to be McElmo or Mesa Verde types or forms, I have assigned 'Mesa Verde' to those new burials added to the synthesis. This is in keeping with the practice of most analysts to date of Aztec materials, but recent AMS dates, discussed below, may call to question this expedient method of dating burials.

A number of letters between Morris and the AMNH indicate that there may have been varying degrees of authorized and unauthorized excavation that targeted burials in and around the Annex, as well as Morris's documented work in Aztec West. Morris's desire to dig wherever and whenever possible remained undiminished over the years of his activity at Aztec. After finding a skull and some specimens in a cornfield near the West Ruin, he sent an appeal to his boss at the American Museum of Natural History, Clark Wissler, for authorization to work in this outlying area. "There are many graves beneath the fields which Mr. Abrams had in cultivation and one who knows what to look for can locate many of them when the ground is being plowed. Have I your permission to spend a few dollars exploring such burial places as come to light from time to time?" (Morris to Wissler, n.d., 1917). Approval was granted.

Several of the unidentified/unattributed photos of burials found in the Morris archive probably document some of these finds; but to date none have been securely identified. Morris did not include discussion of these burials in his 1924 publication, although he did allude to them in letters to Wissler: “I have been securing some skeletal material from ruins that are being disturbed in the vicinity, and there is a good prospect of getting more. Skeletons seem to be fairly numerous everywhere except in the great house.” (EHM/001 C12.D4 #292). The AMNH catalog and Morris's own notes indicate that Morris excavated (to various degrees) 12 sites in in the immediate vicinity of Aztec West but generally not on the monument preserve. These were included in the West Ruin collection (EHM Field Catalogue). These remains are not physically identifiable, nor are they attributable through archival data; they are excluded from the discussion here.

Data Loss of Human Remains

Re-analysis of the human remains from Aztec is difficult for a variety of reasons. As mentioned, correspondence between Morris and Wissler generally indicated that Morris was not interested in human remains but rather the specimens associated with them. [Letter to Wissler, March 13, 1931]: “All human remains I made a definite point of getting rid of, with the exception of two wrapped skeletons which do not bear numbers. Hence, I fully believe the bones reached the Museum” (EHM 002/C11.D.1 #13). Unfortunately, it would seem that many did not reach their destination. A letter from Wissler to Morris indicates that at least one box of human remains (CUMNH, n.d.) disappeared off the platform at Grand Central Station. In practice, most of the remains

were shipped to AMNH, though only 76 sets of remains, fewer than one-third of the numbers originally excavated, are still found in the collections (Ryan Harrod, personal communication 2015). At least two burials (mummified burial bundles) were placed on display in the Aztec Ruins museum, made from a series of seven cleared rooms with intact roofs found at the northwest corner of the site (**Fig 5.3**). These were kept on open shelving in all weather (**Fig 5.4a and 5.4b**), and within easy reach of visitors, until sometime in the late 1920s when the degree of their deterioration required that they be removed. Both have subsequently been lost (Lister and Lister 1990:249). NAGPRA inventories indicate that an unknown/unspecified number of remains from Aztec can still be found at the AMNH, Aztec Ruins, and the Western Archaeological and Conservation Center (WACC). The National Park Service completed inventories of remains on their premises (these ostensibly belong to the AMNH, according to the original agreement) in 1998, 2005 and 2014, and a number of remains were repatriated based upon these inventories. No NAGPRA items from AMNH — those that were excavated by Morris prior to 1928 — have been repatriated (making it possible to re-analyze and photograph the human remains from Kiva D in Chapter 4, *inter al.*).

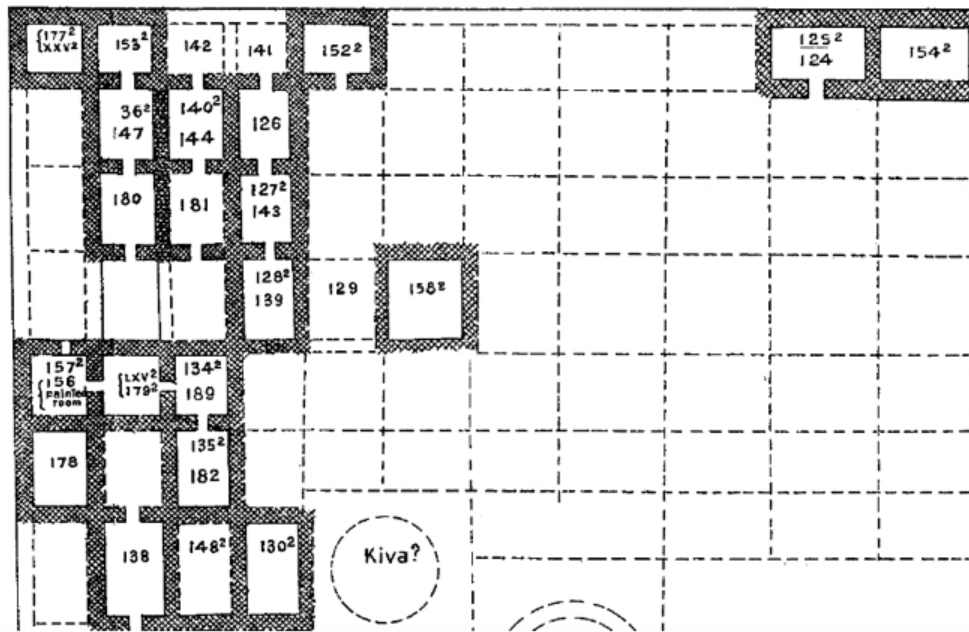


Fig 5.3 Rooms Excavated by Morris in Northwest quadrant of Aztec West. From 1923 Map

By studying these new burial data in aggregate, it is possible to focus on large-picture population behaviors. The building blocks of these data are individuals whose burials provide evidence about life, death, identity, life history, and social role, even when there are pronounced deficits in broader-scale population data. For instance, there are few skeletal data associated with small sites surrounding Aztec West, and chronometric control for the last century of occupation is problematic. Despite this, the compilation of 275 burials from Aztec does allow for a degree of osteobiography. Stodder and Palkovich define this as “Interpretations of the lives of people whose remains are excavated from archaeological sites ... study of an individual beginning with the skeleton and then expanding the analytical and interpretive scale from the grave outward to understand this person's context in life and death” (2012:1). This transition from the individual to broader bio-cultural trends allows for the extrapolation of

information about broad-scale response, adaptation, health, etc., when individuals are not the focus of study. This notion of osteobiography will be revisited in the final interpretation of the chapter.

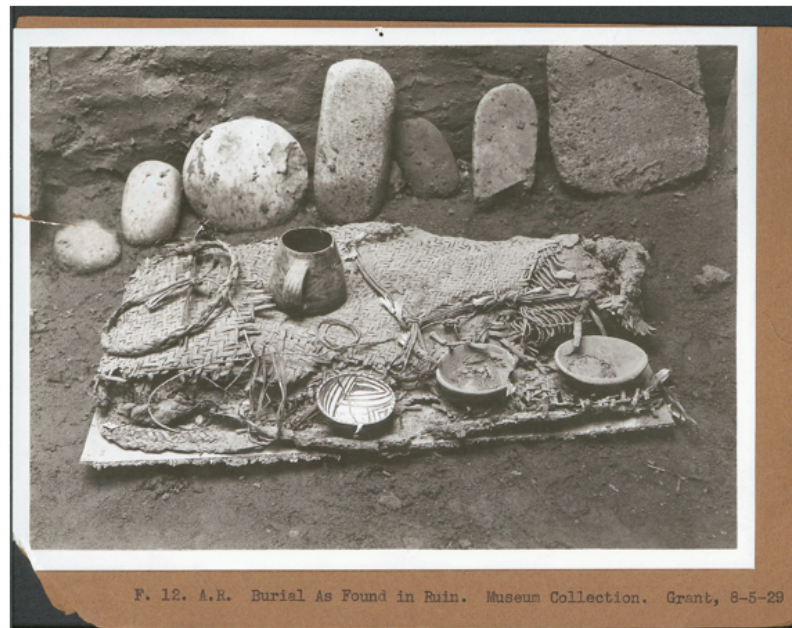


Fig 5.4a and 5.4b: Burial bundles placed in Aztec Museum.

Previously Unidentified Remains

Additional photographic evidence providing more data on Aztec burial survives: at least 26 additional photographs document 32 or more individuals without any provenience and little in the way of forensic evidence to allow for probable identification. Most (at least 18) were found in collections associated with Morris's other work, and their quality, style, and mounting tends to follow Morris's collection patterns; but they cannot be irrefutably attributed to him.

In this chapter, the images were cross-referenced with known burial data and with provenience when possible. Ideally, the latter was narrowed to the room-level, but this was not always possible. Once this was done, they were compared to Morris's burial description to ascertain if there was any possible overlap, and matched accordingly. Once determined these burials had not been included in Morris's publications or descriptions, high-resolution photographs were sent to Paul Sandberg who examined the photographs to determine sex, age at death, pathology, trauma, disposition and other information when possible. Sandberg then submitted a short report on his findings (on file with the author) (**See Appendix 5**). These data were then entered in the compendium of new burial data for Aztec.

Recent Analyses of Burial Data From Aztec

With one exception, “The Splinted Skeleton” from Room 139 in the West Wing (discussed in detail in Chapter 6), Morris did not give particular consideration to or write about any burial in detail (Morris 1924a:214-219). Morris averaged around 130 words

per burial description, and he was not always systematic about recording basic data such as orientation, sex or age — often these data were left blank. Since the time of Morris's work, however, a number of studies have re-examined some of the extant, un-repatriated remains from Aztec. Individuals were analyzed for stature (Harrod et al 2012), teeth were analyzed to assess their probable relationship with Chaco (Durand et al. 2010), and coprolites were dissected to determine overall health (Reinhard 2008). In sum, Harrod et al (2012) found that a 40-50 year old adult male buried in the 13th century with extensive grave goods, including a shield (Room 178, Burial 101, AMNH # 8070), was both taller and more robust than typical burials found at Aztec and Pueblo Bonito. The authors found that the man's stature (about 6' 1") was comparable to high status burials excavated in Room 33 at Pueblo Bonito; and they concluded that Burial 101 was of a high status individual. Detailed analysis of the records of two burials from Room 33 in Pueblo Bonito conducted by Plog and Heitman (2010), concluded that the nature of the grave goods (and particularly preciosities) associated with middle aged, tall, robust males buried in central, difficult-to-access crypts were also indicative of high-status individuals found within great house communities.

Some recent analyses of burials from Aztec raise important questions about dating and social shift. A few examples must serve to demonstrate the phenomenon here. The burial known as “The Warrior” (Burial 83, Room 139) named because of a massive woven and painted shield laid across his chest, has recently been the subject of AMS testing by scholars from the University of Virginia and the Peabody Museum. They found that his skeletal remains date from 1020-1160, earlier than many of the whole

vessels associated with his tomb. They also tested Burial 25 (two adults in Room 110/111) that date to 1050-1220, a timeframe that also encompasses PII/Chacoan dates not previously thought possible given the associated material culture. A date from Burial 82, a single isolated skull in Kiva S that Morris described as 'Chacoan,' dates to 1020-1060 (Plog, personal communication 2016). Morris gave no explanation for why this particular skull was attributed to the Chacoan period (it is unclear if there were any associated artifacts), but the dates do clearly fall into the Chacoan/PII time frame.⁵

Other recent studies at Aztec include analysis of discrete dental cusp patterns by Durand et al. (2010), who found a close genetic association between populations at Aztec and those at Chaco Canyon when compared to other regional sites. The next closest association to Aztec was Salmon Ruins and La Plata PII sites, followed (in order of decreasing strength in relationships) by La Plata PIII, the Tommy Site and Mine Canyon (Durand et al. 2010:123). Reinhard (2008) studied coprolites in the AMNH collection and determined that a vast majority of Aztec's 13th century inhabitants suffered from high concentrations of intestinal worms that are found in situations of poor sanitation. This would have caused a vast majority of the population to have suffered from extremely poor health — even more than would have been the case for other contemporary great house residents (Reinhard 2008).

⁵ It is curious how this skull come to be on a kiva floor (or possibly in fill), between 30 and 70 years before Aztec West was constructed? Lekson's suggestion (personal communication 2016) that the skull, which dates 30-70 years before Aztec West was constructed, is an old one, perhaps a trophy or the skull of an ancestor, provides an intriguing and believable reason for its discovery on the kiva floor or possibly in fill."

These few case examples of the new information brought to light by recent analysis of extant burials from Aztec highlight a few significant features. There is much yet to be learned. Some of our notions of neat chronology and directional changes in behaviors (or pottery) will probably need to be re-examined in light of scientific evidence. And the data assembled here for the first time offer unparalleled resources for considering existence and ideas at Aztec.

III. Part 2: The New List and Map of Burials at Aztec

Re-analysis conducted for this research includes an additional 90 individuals, or a 33% increase in number of inhumations over those individuals originally recorded and published by Morris. Not included in these numbers were the 32 individuals (described above) that were photographed by Morris or others but for which provenience was unidentifiable.

Traditional demographic models of archaeological populations require data that include size, structure (age and sex), dynamics (growth and decline), density, fertility, mortality, migration, etc. (Daugherty and Kammeyer 1995). In archaeological samples, this requires fine-grained mortuary data, good sample sizes, and a degree of chronographic control. These data are not available in sufficient quantities at Aztec to allow for the construction of life tables or analyses that could be construed as a traditional demographic study. For example, fewer than 14% of the burials (32) have been assigned a sex (**Table 5.4**). Despite these deficits, there are sufficient data to re-examine and add to Morris's interpretations and to develop a new assessment of Aztec's

population. The tables and maps below will illustrate patterns in location, inclusions, disposition, age, sex, etc.; from them it emerges that Aztec provides perhaps the most numerous and refined mortuary data available for any great house in the Southwest.

The main database on which I draw for this chapter includes all known burials at Aztec Ruins, and most (if not all) of the data associated with them. These include the burials listed and described above, corrections to Morris's interpretation, and additional burials added to the compendium through archival research. The database is too big to include in print form, but it is attached as an additional Microsoft Excel file. Selected data are described below, and the tables included here excerpt salient information that will be discussed in more detail.

The new database of burials from Aztec includes locational data for burials located "inside" Aztec West, including the rooms, kivas and associated refuse mounds, as well as the location of those burials found "outside" the great house. The latter include small sites (not usually named, but with general direction and distance given), the Annex, the Hubbard Tri-Wall, Mound F, cremation burials found near the East Ruin, and several burials found in nearby fields. When possible, I have included provenience data, age approximation, number of associated inhumations, sex, disposition (in this case position that includes flexed, extended, supine, etc.), side, portions of remains present, vertical location, orientation, number of associated vessels (usually complete), additional associated grave goods, presence or absence of burning, whether the burial has a photo and if it has been published, and the source material for the information.

The following section provides a general interpretation of the character and disposition of burial data derived from the new information at Aztec. After a brief overview (a series of tables and explanations), these data will be compared with Morris's initial interpretations of Aztec burials and with the great house burials at Pueblo Bonito.

Table 5.1: Number of Burials found “inside” versus “outside” Aztec West.

	Count of Burials	Inhumations
Inside Aztec West	168	207
Outside Aztec West	55	68
Grand Total	223	275

Table 5.1. This table indicates a division of burials located inside or directly associated with Aztec (the great house, and the southeast and southwest Refuse Mounds), versus those distinguished as outside Aztec West. The “Count” (or first column) indicates the number of burials. The “Sum” (second column) indicates the number of individuals interred within those “burial” events. This distinction holds true for the rest of the tables also and reflects the fact that sometimes a “burial” included more than a single individual.

For the additional analyses in this chapter, unless otherwise noted I will use the data that are available for those burials found inside the great house. This is because the provenience — at least to the room level — is most precise, and the information is most complete concerning burial associations, vertical location, general state of the human

remains and occasionally additional matters. This selection also allows for comparisons to other great house communities in the Southwest.

Table 5.2: Age of Burials found Inside Aztec

Age	# Burials	Inhumations
Infant	28	31
Child or infant	1	15
Child	66	73
Adolescent	3	3
Adult	67	70
Unknown	2	2
Various	1	13
Grand Total	168	207

Table 5.2 indicates the age distribution for burials found within Aztec West and the associated Refuse Mounds. The category “various” at the bottom of the table is a grab-bag for those burials to which uncertain or multiple age categories were assigned. Morris (1924a) and McKenna (1984) identified patterns of older adults and young children as the primary internments of Aztec West. Analysis of this new data changes this picture, however: of the 70 adults found in Aztec West, four were categorized (by Morris) as being in the late 20s to 30s, 12 were categorized as 'young' adult, and 9 were categorized as 'aged.' In general, this indicates a relatively normal distribution of adult-aged individuals, rather than heavy representation of the aged.

Table 5.3: Sex of burials found at Aztec

Number of inhumations

Sex in Aztec West	Female	Male	Total
Inside Great house	18	9	27
Grand Total	18	9	27

Table 5.3 demonstrates occurrence of male and female burials found at Aztec.

Relatively few burials 39% (27 of 70 adults) have been sexed at Aztec, but twice the number of women as men are represented. Possible over-representation of female in great house burials is a pattern that is seen elsewhere and will be discussed below.

Table 5.4: Number of whole vessels associated with male or female burials at Aztec.

# of whole vessels	Female	Male	Total
0	7	4	11
1	2	2	4
2	4	1	5
3	4		4
4	1	1	2
6		1	1
Grand Total	18	9	27

Table 5.4 indicates that fewer males are in the sample were found with whole vessels than females, although a slight disparity shows higher numbers of whole vessels being associated with those male burials. Whole vessels have been used by McKenna (1984), Akins (1986) and others as a proxy for high or low status in the community.

Table 5.5: Association of mugs with burials inside great house

Count of Mug Association by Age	Total
Infant	2
Child or infant	1
Child	8
Adolescent	-
Adult	13
Unknown	-
Various	1
Grand Total	25

Table 5.5: indicates the occurrence of whole mugs with burials divided by age category at Aztec. The significance of mugs in association with burials will be addressed at the end of the chapter.

Table 5.6: Vertical location of burials found at Aztec Ruins

Location	Total
Floor	27
Refuse Mound	10
Sub-floor	14
Suprafloor - clean fill	6
Suprafloor - refuse	100
Unknown	11
Grand Total	168

As **Table 5.6** shows, 60% of burials are found in refuse in rooms while an additional 6% are found in the refuse mounds. Those found in subfloor contexts were sometimes floored over and the rooms continued to be used (Room 183), while in other cases the room was allowed to fill with refuse.

Table 5.7: Vertical location of burials found inside in the Great House

Location	Count	Inhumations
Floor	27	31
Refuse Mound	10	11
Sub-floor	14	14
Suprafloor - clean fill	6	6
Suprafloor - refuse	100	131
Unknown	11	14
Grand Total	168	207

Table 5.7 indicates the disposition of burials found inside Aztec West (within the great house and its associated refuse mounds), and where individuals were buried.

Table 5.8: Position of the human remains found at Aztec and surrounds

Location	# of vessels					
	Extended	Flexed	Indet.	Scattered	Sitting	Sprawled
Floor		12	12		2	1
Refuse Mound	1	6	3			
Sub-floor	2	11	1			
Suprafloor - clean fill		5		1		
Suprafloor - refuse	3	62	27	8		
Unknown		1	5	5		
Grand Total	6	97	48	14	2	1

Table 5.8 contains similar data as Table 5.7 above, but expands the information to include burial disposition. This table indicates that a significant number of burials found inside of Aztec west were buried in rooms already filled with refuse, and most often above the floor.

Table 5.9: Burials by location (room and kiva) with number of associated whole vessels

Burials by sex with whole vessels	# of Vessels
Female	26
Room 132	0
Room 138	3
Room 139	3
Room 150	4
Room 153-2	0
Room 159	2
Room 175	0
Room 180	3
Room 182	0
Room 183	0
Room 185	1
Room 196-2	3
Room 201 (Boundey Room 199)	2
Room 29	3
Room 33	0
Room 43	2
Male	14
Kiva D	0
Room 151	0
Room 178	6
Room 180	0
Room 183	2
Room 185	6
Room 45	0
Grand Total	40

Table 5.10: Age of burial and association with number of whole vessels

	# of vessels								
Age	0	1	2	3	4	6	39	51	Total
Infant	23	4	1						28
Child or infant	1								1
Child	45	7	6	1	2	1	3		66
Adolescent	3								3
Adult	33	9	11	6	2	1	2	1	67
Unknown	2								2
Various	1								1
Grand Total	108	20	18	7	4	2	5	1	168

Table 5.11: Ages of burned/cremated burials and cremations at Aztec

Burned	
Infant	2
Child or infant	-
Child	18
Adolescent	-
Adult	16
Unknown	-
Various	1
Grand Total	37

Table 5.12: Inhumation position as related to age

# of Inhumations	Adolescent	Adult	Child	Child or infant	Infant	Unknown
Extended		3	2		1	
Left side		2				
Right side		1	1			
Supine			1		1	
Flexed	3	47	36		11	
Face down		2	1			
Indeterminate		2	2		1	
Left side	1	15	14		4	
Right side	2	25	18		6	
Supine		3	1			
Indeterminate		13	26	15	18	
Indeterminate		12	26	15	17	
Left side		1			1	
Scattered		4	9		1	2
Indeterminate		4	9		1	2
Sitting		2				
Sitting		2				
Sprawled		1				
Right side		1				
Grand Total	3	70	73	15	31	2

IV. Initial observations on Aztec burials

After compiling and breaking down basic data (as described in the first portion of this chapter), I have categorized the burials in meaningful ways. Analysis of the new burial data at Aztec is still in its initial phases, but already it shows:

1. Distribution of burials throughout Aztec West was not even (**Fig 5.2**). Morris excavated approximately 200 rooms and 20 kivas. Fifty-three of these rooms (about 10%) contained burials. Ten rooms held 105 individuals (not including the looted rooms). In all, 19% of the rooms account for 56% of the burials found

(McKenna 1988). These burials are concentrated in the northwest and southwest sections of the building with the exception of Room 52, located in the Central-East Wing. This massing phenomenon may represent sampling error (much of the central portion of the West Wing has not been excavated), kin or clan-based crypts, mass death-events, or some other phenomenon.

2. Almost all burials had associated objects. In the northwest and southwest quadrants of West Ruin, the most common grave accompaniments were bowls and mugs (**Table 5.4**) (mugs are a unique vessel form made almost exclusively in the 13th century, traditionally associated with Mesa Verde culture). McKenna (1988) notes that one in four burials was associated with pottery, though the northwest quadrant group is distinguished by greater variety of forms and decorated (painted) vessels. There are more specimens found with individuals in mass burials than in those buried individually. Burials in the southwest quadrant are notable for their association with miniature corrugated pots, ceremonial sticks, beads of shell, turquoise, fine textiles, and effigies, along with smudged pottery, hemispherical and rectangular bowl forms, pitchers, globular vases and kiva jars (Morris 1919, 1924a, 1928; unpublished AMNH records; McKenna 1988).
3. Aztec West demonstrates an unusual occurrence of sub-adult (infant, child, young adolescent) burials that were interred within 1st and 2nd story rooms (**Table 5.2**). Nearly half of those interred inside rooms in Aztec West (excluding the Annex and Refuse Mounds) are sub-adults (infant, child, adolescent).
4. In general the burials found at floor level (27 total) tended to be atypical or, as I will argue below, high status. This includes the Warrior, the Splinted Skeleton, two people sitting, two sprawled, and the five in Kiva D.
5. Burial contexts at Aztec were often disturbed, whether by carnivores, rodents, or humans. The burials in in Room 110/111/112 were vandalized prehistorically (Morris 1924a:163-164), fifteen or more burials in Room 142 were looted in 1882 (Howe: 1947), and more than a dozen rooms in the northern wing of the site were looted in the late 19th century. Of these, at least some probably contained burials (Boundey 1927). A single burial atop a prehistoric platform in Room 121-2 disappeared sometime after 1895 (Morris 1928:393).

V. Aztec Burial Categories

There are enormous amounts of burial data that could be quantified and examined on many scales. This dissertation's goal, however, is to illustrate how it might be possible to apply multimodal analysis to legacy data and extract new meanings and understanding from the archaeological record. In the case of burial data, I have attempted an undirected (without hypothesis) undertaking. Qualitative assessment of the burials led me to group the 207 inhumations *in* Aztec West into four categories:

“Typical,” “High Status,” “Inconsiderate,” and “Unclassified.” The numbers by individual inhumation rather than burial “event”:

1. *Typical*: 54 (26%). 137 (66.2%) are found above floor. (**Table 5.8**). When position can be determined (122 of 207 burials), 97 (80%) are flexed (**Table 5.12**), and 163 (78%) have 0-1 whole vessel associated (**Table 5.10**). 54 Burials (26%) align with all three of these categories, though the percentages are much higher when only one or two of the criterion are considered.
2. *Unclassified*: 111. (53%). These encompass the remainder of burials.
3. *High Status*: 23 (11%).
4. *Inconsiderate*: 22 (10%).

Typical Burials

“Typical” is a category assigned to denote representative, characteristic, or normal traits associated with a burial pattern. At Aztec West, typical burials of individuals whose positions can be determined (n=133) are flexed and placed on either their left or right side. They make up 83% of the sample. Typical burials have zero or one whole vessels associated with them (n=128, or 80%), and are most often buried above the floor in refuse (n=106, or 77%). Their orientation and disposition vary widely (a trait that Morris noted could be explained by the phenomenon of burial in rooms, commenting that the placement of individuals largely depended on where the doorways were located and which areas along the wall were open and available for interment. One-quarter, or 54 of 207, possess all three of these common traits (flexed, 0-1 vessels, burial in supra-floor refuse). These traits represent a significant percentage and strong pattern for mortuary practice at Aztec.

Unclassified Burials

This is essentially a category that includes burials not classified in the other three categories, and which include a range of variation. Most of the unclassified burials are placed in this category because they lack associated data.

High Status Burials

High status burials are defined as those that may be associated with high rank or prestige, manifest in grave goods that reflect the individual's rank in life (McKenna 1988, Akins 1986, Herrod and Martin 2012). In ranked societies like those found at Aztec, “there is differential access to positions of high status and prestige, with fewer positions than there are people to occupy them... Access to these positions can be achieved (acquired in life through effort of some kind) or ascribed (acquired through birth)” (Ames 2009:489). High status burials are by their nature atypical or uncommon. Archaeological evidence of high status burials comes from the type of tomb construction, and the value and distribution of the grave goods. “High-ranking individuals are expected to have more and/or more expensive grave goods, as well as graves” (Ames 2009:498).

McKenna (1988) applied a filter of “5 or more vessels” associated with a burial, but others (Reed 2008, Plog and Heitman 2010) examine quality and quantity of non-ceramic goods. Status can also be indicated by large quantities of prestigious (high quality, rare material, ritually significant) objects. By the time Morris finished his work at Aztec at the age of 39, he had seen and excavated hundreds of human burials that

spanned the Basketmaker period to the Early Historic period in the Southwest. While Morris was not formally trained in anatomy, he could be considered an expert in mortuary assessment and in qualitative judgment as to whether (and how) some individuals ought to be labeled atypical, possibly a person who had attained some level of status or rank. At Aztec, Morris (Morris 1924a: 155-161; 151-153; 163-167; 167-169; 193-195) identified at least five interments that might be considered “high status” burials. Morris paid particular attention to these burials, described them in more detail, included associated artifacts in his publication, and in one case (Room 41), alluded to its comparable status with Room 33 at Pueblo Bonito (Morris 1924a: 156). These are:

1. Burial 16 in Room 41 (turquoise enshrouded two adults, 3 children, 200 bushels of corn)
2. Burial 14 in Room 52 (13-15 burials, of infants/children, high quantity of grave goods)
3. Burial 25 in Rooms 110-111 (two adults, with numerous ceremonial objects — almost precisely comparable to Pueblo Bonito in accouterments and location)
4. Burials 29 and 30 in Room 141 (sealed crypt)
5. Burial 83 in Room 178 (burial of warrior)

Morris did not use the term high status in the description of these burials, but in describing these burials alone did he devote extra publication pages to listing each of the associated grave goods (**See Appendix 6**). The debate concerning the presence and degree of status burials in Southwest archaeology has largely been put to rest (Goldstein 2001:250). Literature from this century largely dispels the notion of a wholly egalitarian Pueblo past, and indeed often distinctions of status in life were made evident in mortuary practice. Unfortunately, the terminology necessary to discuss burials that vary from typical burial practice in certain areas at certain times has not advanced to the

degree necessary to capture the spectrum of burial rites and, more importantly, the life histories and significance of the individuals interred.

Do the burials of individuals listed above constitute high status burials? “The term status commonly refers to the ascribed (inherited) and achieved (earned) rights and duties accumulated by each individual in society while alive” (Hatch and Willey 1974:109). Binford (1971) has argued that most societies symbolize the status or “social personae” of their members upon their death. Hatch and Willey extrapolate, “knowledge of the mortuary symbols associated with an individual in a society will therefore give clues to his or her status in life. At the same time, knowledge of the mortuary symbols associated with every member of a society suggests patterns of status relative to other members and general social principles operating in the society” (Hatch and Willey 1974:109). More recent studies (Hohmann 2001) attempt to provide a more systematic analysis of how to categorize and assign degrees of status to burials in the Southwest.

The following hypotheses have formed the basis for articulating and differentiating status based on mortuary remains in the Southwest: 1) Variability in burial attributes is the prime factor that affects burial forms; 2) Selected types of artifacts found with individuals of different ages and sex may indicate rank and reflect inherited power or status; 3) Rank indicators are more qualitative than quantitative; 4) Highly stratified communities are often identified by greater expenditure of wealth on burial goods with relatively higher material wealth, often demonstrating a clear correlation between energy invested in grave goods and the status of the deceased; 5)

As social differentiation increases, there is often a formal structuring of site areas — such as the creation of cemeteries; 6) The total burial program may reflect the totality of community organization; and 7) Ethnic variety can be the primary factor in burial variability (Hohmann 2001:98-99). Ames (2009:497) echoes a similar method of assessment of burial type outside the Southwest. (See also **Appendix 6**)

Inconsiderate Burials

This category comprises unusual, unique, and “inconsiderate” burials. This latter term derives from the treatment of burials at or immediately after the time of death or in “cases where the individual has been buried in a different way relative to the norm for the period and/or the population under examination” (Tsaliki 2008:1).

Burials among ancestral Pueblo groups that are defined as “inconsiderate” are atypical in that the body might be placed irregularly or carelessly, burned, dismembered, crushed or otherwise treated in ways that might be considered disrespectful. At Aztec, there are 23 individuals that I have determined to be “inconsiderate” based upon these criteria (**See Table 5.13**). Burials that fall into this category include 16 individuals who were burned, a woman described as “sprawled” with her jaw removed, two individuals walled into rooms, a middle-aged woman with a 5' stake driven through her pelvis, a disarticulated skull on the floor of a kiva, and four individuals who were buried face-down, or in what I term a prone position.

One category of unusual burial at Aztec that is not often seen in the Southwest, consists of those that are buried prone, or face-down. There are at least four incidences

of prone burial at Aztec. Each of these individuals was buried in a room and had a mug placed near the head (See also **Appendix 7**).

Table 5.13: Table of High Status and Inconsiderate Burials at Aztec West.

See Map of locations **Figure 5.7**.

Inconsiderate	Morris Description	Treatment	Burial #	# of indiv	Source	Photos	Figure/Appendices
Kiva D	"Charcoal ed"	Burned	None assigned	5	Multiple. See Chapter 4	6	
Kiva S	"Chacoan skull"	No other parts	#82	1	1924a:193	None	
Room 41*		Charcoal ed flesh	#16, 2 adults and 3 children (at least)	5	1924a:155-161 And Morris summary	1	Fig 5.8 Fig 5.9
Room 132	"Dungeon"	Walled in	None assigned	1	1928:396-398	None	
Room 139	"Splinted Skeleton"	Rock between legs	#27	1	1924a:167, 214-219	6	Fig 5.10 Appendix 2 and 3
Room 147		Adult. Found 1882. Walled in	#61	1	1924a:186	None	
Room 150		Prone	#43	1	1924a:178-179	3	
Room 159		Prone, older woman	#79	1	1924:189-190	1 problematic	
Room 180	"Witch of San Juan"	Stake in pelvis	#100	1	1924a:196-199	2	Fig 5.11
Room 182		Small woman broken ribs	#88	1	1924a:195-196	None	
Room 183		Prone, face down	#107	2	1924a:200-204	2	
Room	-	Prone,	#126	1	1924:205-	2	Fig 5.12

185		with face in bowl			209		
Room 201	"Sprawled"	Inconsiderate disposition/ jaw removed	#145	1	Boudey field notebook	Sketch only	Fig 5.13
High Status							
Room 41*	"Beaded skeleton"		#16 2 adults and 3 children (at least)	5	1924a:155-161 Comparable to Bonito (156)	1	
Room 52		13-15 children	#14	15	1924a:151-153	1	Fig 5.14
Room 110/111	"Riffled Men"		#25	2	1924a:163-167	1	Fig 5.15a and b
Room 178	"Warrior"	1 of 6 pots "ceremonially broken" 1924:223	#83	1	1924a:193-195	2	

*Note that room 41 is found in both status and inconsiderate tables. It is an enigmatic burial.

* Room 141 was potted in 1882, but contained the remains of 13 individuals with what Sherman Howe "sumptuous" grave goods.

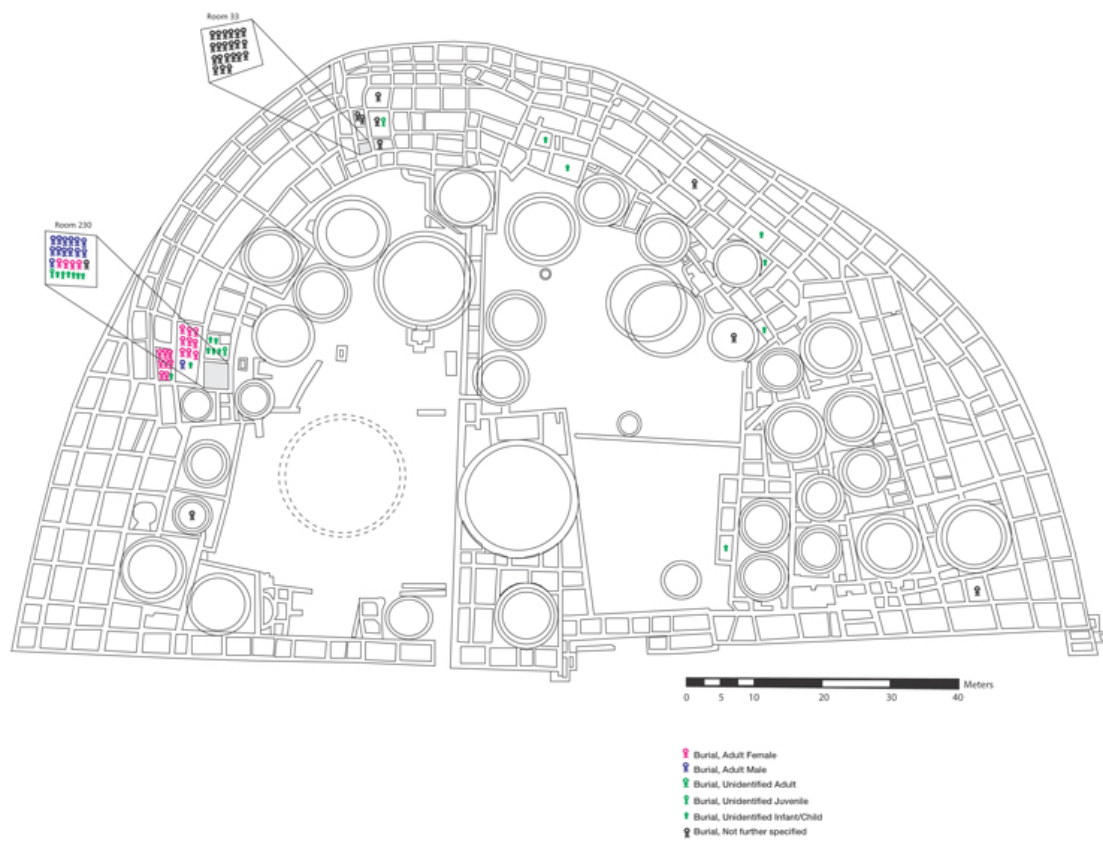


Fig 5.5. Bonito Burials (after Akins 1986)

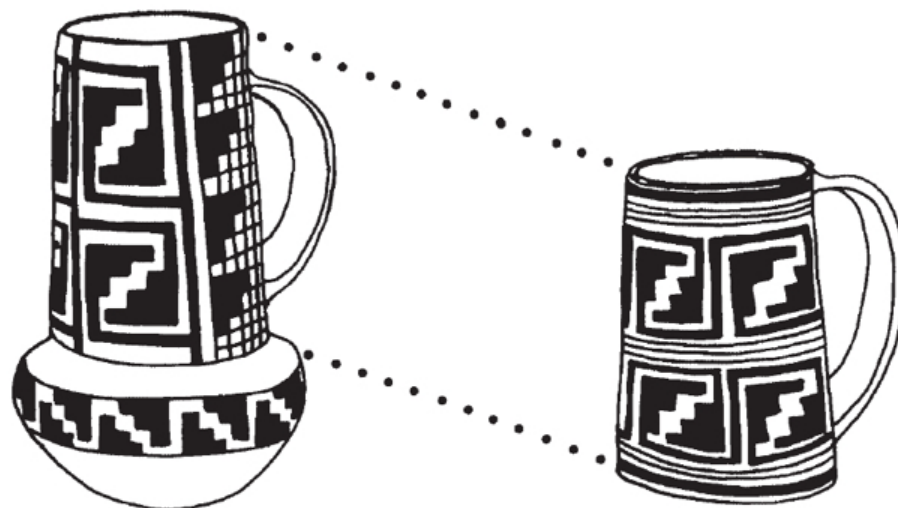


Fig 5.6. From Bradley 1996 that shows the similarity with the top portion of a Chaco pitcher left, and a Mesa Verde mug, right. Used with Permission.



Chaco Pitcher: Room 28, Pueblo Bonito
Chaco Archive A0079984
Courtesy Chaco Research Archive



Mesa Verde Mugs: Grave 16, Room 41 E. Wing, Aztec
In Anthropology Paper, Vol 26. pt 1, 1919.
Courtesy, American Museum of Natural History

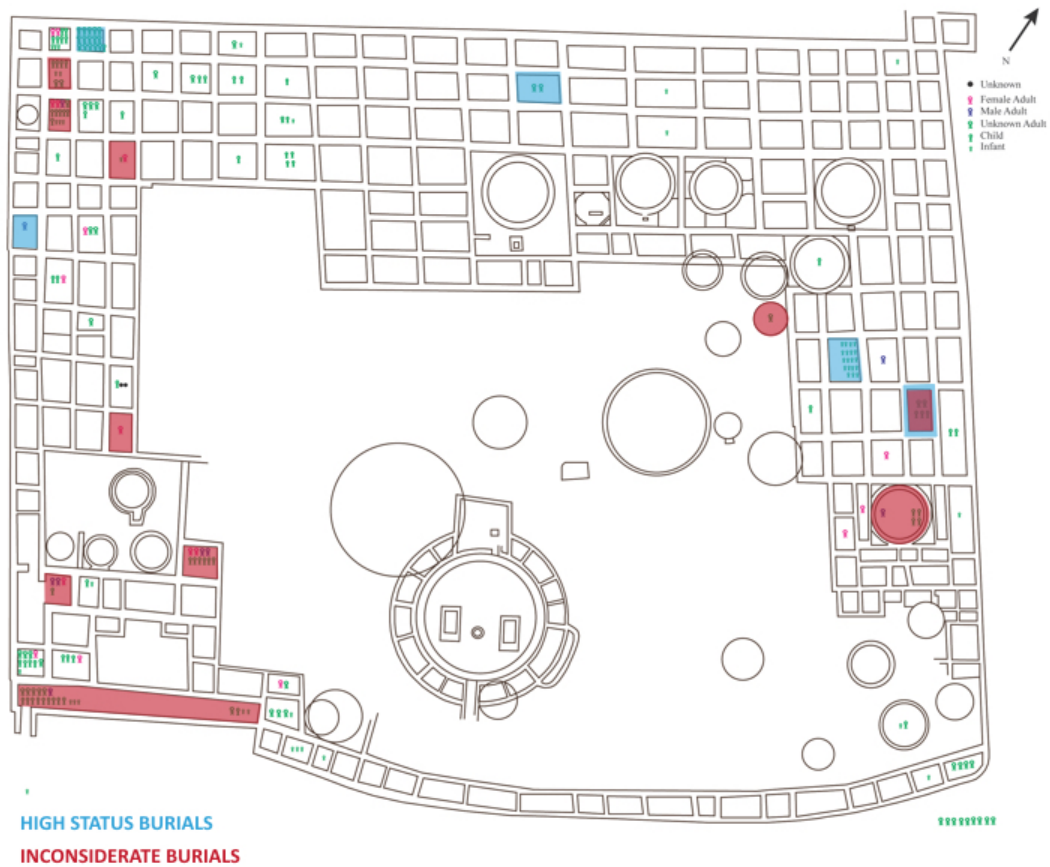


Fig 5.7. Location of possible High Status (Red), and Inconsiderate (Blue) Burials in Aztec

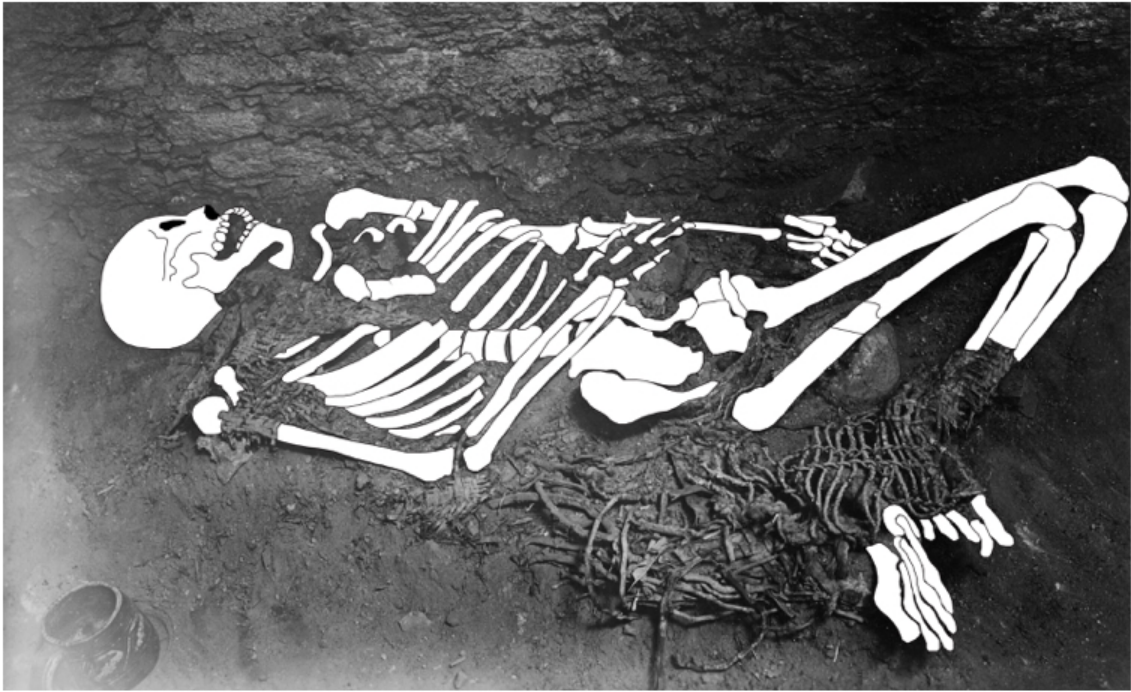


Fig 5.10: Showing close-up of splinted skeleton



Fig 5.11. Room 180. Burial #100. Stake driven through pelvis. Photograph altered to obscure human remains.



Fig 5.12. Room 185. Burial #126. Two males, both prone. One with face in bowl (right), and the other with vertebral column removed. Photograph altered to obscure human remains.

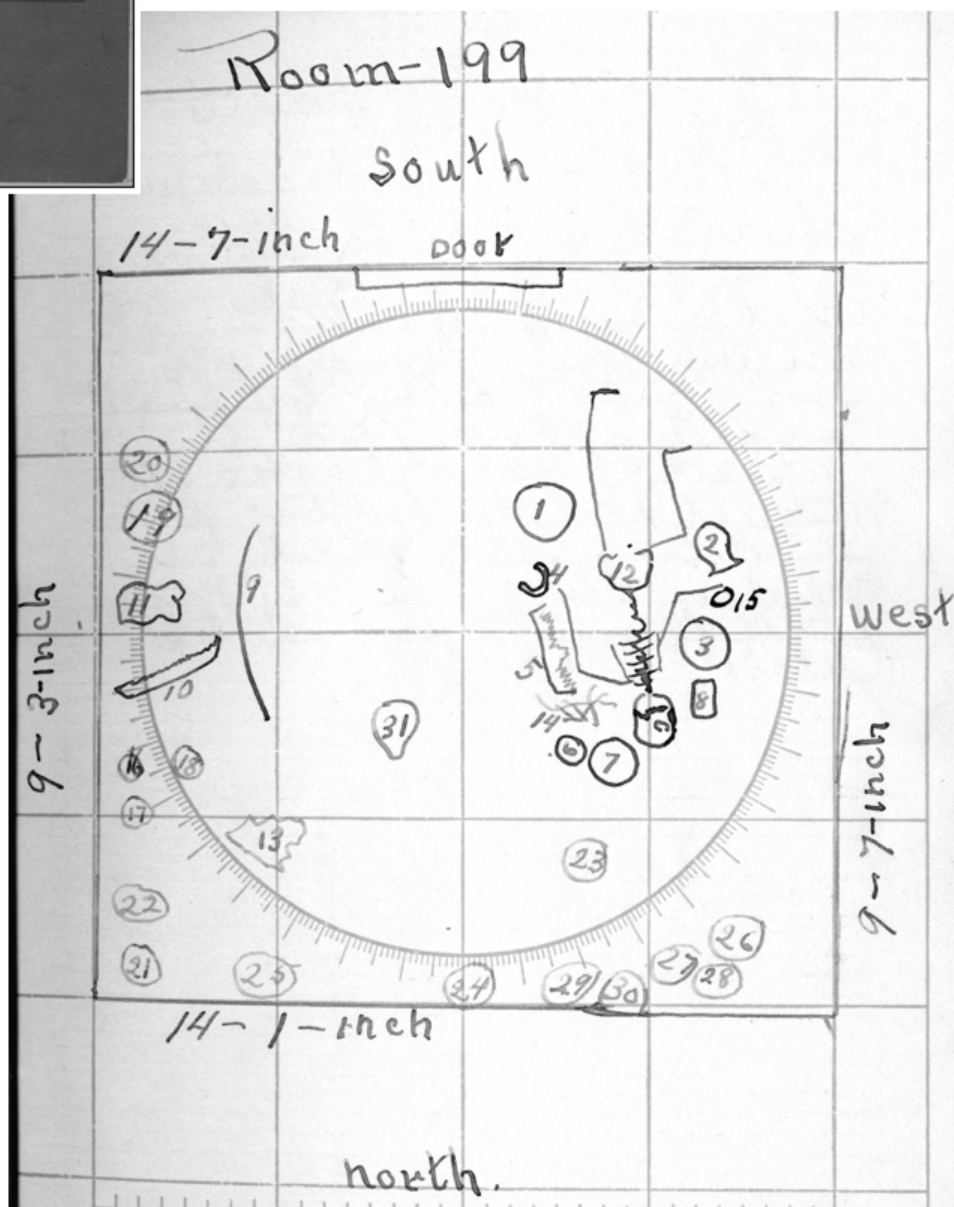
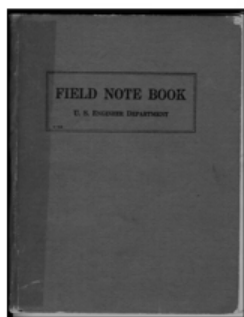
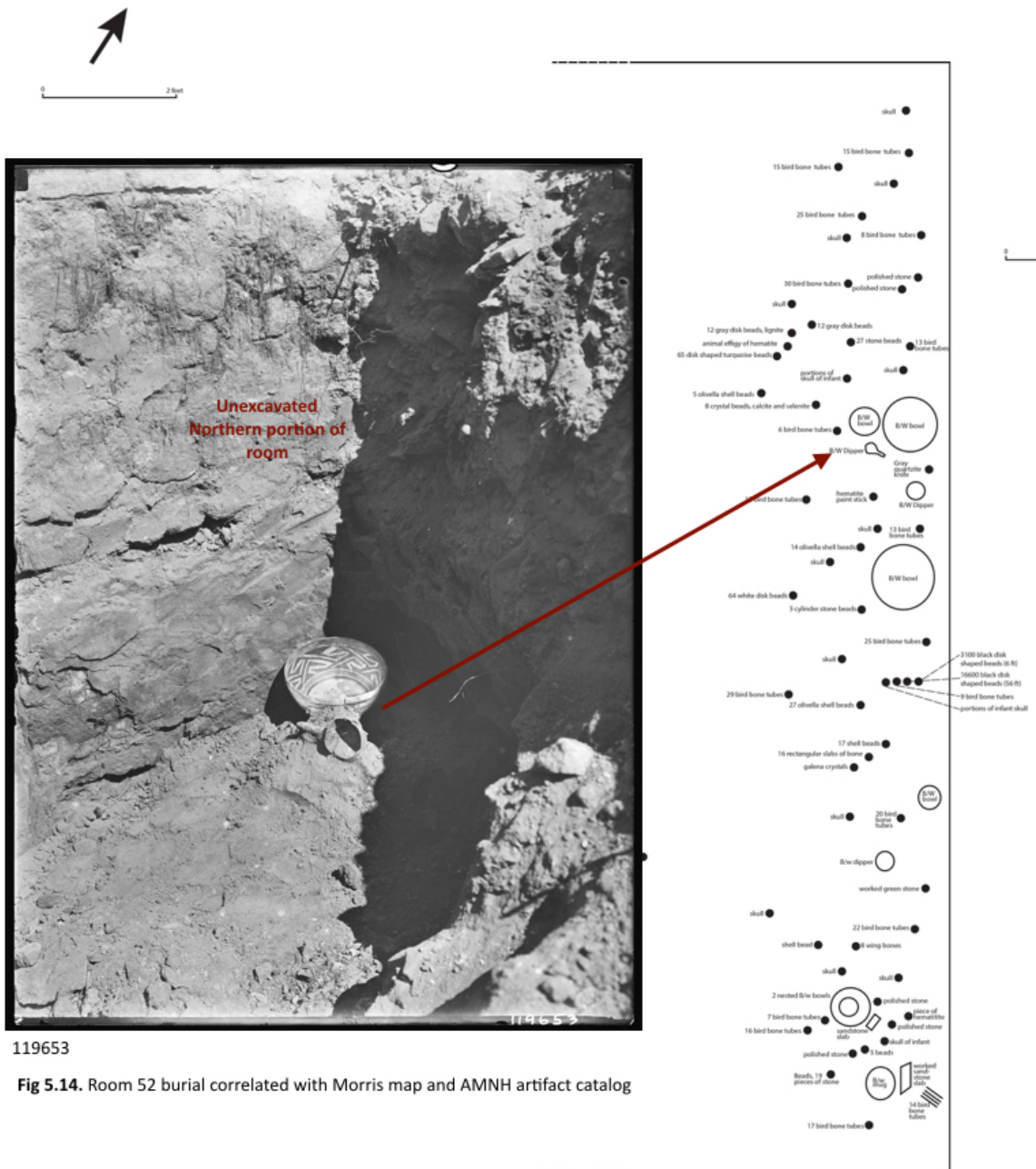


Fig 5.13: Room 201, Sprawled burial. Recorded by George Boundey in 1927



119653

Fig 5.14. Room 52 burial correlated with Morris map and AMNH artifact catalog



Scattered human remains of two adults, turquoise bracelet closeup.



Fig 5.15a and b. Room 110/111 of two adults who were vandalized prehistorically.

If these are acceptable as some of the guiding principles in analyzing status burials at Aztec, then it might be possible to make a number of assertions based upon analysis of the total burial population. Indeed the data suggest “high status” is an appropriate term for some of the burials at Aztec.

1. Variability in the burial population exists, and there is marked differentiation of grave goods associated with a number of burials. These goods include whole vessels, which are the strongest probable proxy for rank, as well as precious goods that are often non-local imports, and quantities of goods — particularly beads.
2. Based upon selected artifact types listed above, and using whole vessels as a proxy, with at least 1.5 vessels associated with a single individual, there are 14 rooms in Aztec West with 47 inhumations and 163 whole vessels which may represent above average, or “high” status burials. (In descending order of associated whole vessels: Room 110, Room 41, Room 150, Room 52, Room 159, Room 37, Room 178, Room 56, Room 203, Room 106, Room 139, Room 196-2, Room 205, Room 29. Of these, 8 have been sexed and they represent 5 adult females and 3 adult males). In all, the group of burials with above-average number of grave goods is represented by 12 adults, 13 children, and one infant. This would seem to indicate a cross-cutting of multiple ages and sexes who were buried with high numbers of complete vessels. Such a breakdown likely indicates both achieved and ascribed status and may suggest hereditary status.
3. Qualitative assessment of associated grave goods across Aztec is difficult without direct analysis, but based upon Morris's identification of “high status” or unusual associations, particularly turquoise inlays, unusual vessel forms, or high quality burial garments, we can see that high numbers of qualitatively valued goods are often associated with the burials indicated above. Exceptions to this trend include Room 196-2, Room 205, and Room 29, which had relatively low ratios of vessels to inhumations.
4. In particular, Room 110 (51 whole vessels), Room 41 (39 vessels), and Room 178 (warrior with shield and six whole vessels) all appear to have quantities of high quality, high labor expenditure goods. All these interments were placed directly on floors of “internal” rooms within the great house.
5. While there are high concentrations of burials in the west wing of Aztec West, according to the outlines of what constitutes high status burials in the list above, there is less clarity about “formal” spaces used for burial. Three rooms are concentrated in the Southeast quadrant, five in the northwest quadrant, one in the north-central wing (difficult to ascribe to a quadrant) and five in the southeast quadrant. Based upon where Morris excavated, the

absence of burials in the northeast quadrant is the most conspicuous pattern visible related to formalized burial areas.

6. The totality of the burials at Aztec does give us a better degree of demographic distribution, as discussed above, and makes it possible to establish, with a clear method, how high status burials are identified and defined.

VI. The Problem of Great House Burials

Aztec is unusual because of the sheer number of burials found within the confines of the great house itself (207). The use of parts of Aztec West as a mausoleum — or at least as a cemetery — is striking. The phenomenon distinguishes Aztec from other great houses but at the same time highlights various problems with the practice and its recording by archaeologists.

Temporally, a vast majority of the burials at Aztec appear to post-date what is traditionally known as the Chacoan period/PII/900-1150. Morris and most subsequent archaeologists who have worked at the site recognize that most burials found at the site date to the Mesa Verde/PIII/1150-1300 period. The recent radiocarbon dates taken by Plog and LeBlanc may warn against our previous over-confidence in the assignment of a time-period or ethnic group to an individual based upon artifact association. However, this does not make comparison between Chaco and Aztec burials inappropriate. Rather, it only becomes necessary to reframe the questions asked. If Aztec inherits Chacoan architecture, material culture, identity, etc. — then the same might perhaps be said for mortuary practice. Do mortuary patterns indeed function in the same way at Aztec as they did at Chaco? Does that indicate that Aztec was functioning in the same manner

that Chaco had when the individuals were buried? What, if any, patterns might be identified?

VII. Aztec, Pueblo Bonito, and greater Southwest mortuary pattern comparison

In order to assess Aztec's mortuary data, we must look at comparable sites for comparanda. The best site for comparison data in mortuary pattern is Pueblo Bonito. Bonito is almost entirely excavated, it is demonstrably linked to Aztec in a variety of material culture expressions, and it is temporally and spatially proximate to Aztec. Akins (1986:161-162) analyzed Pueblo Bonito's mortuary remains in a manner similar to that undertaken in this chapter. She pulled together dozens of source materials to develop a compendium of burial data at Pueblo Bonito (and more broadly, Chaco Canyon). In her report, she identified 98 individuals buried in Pueblo Bonito (based upon the work of Judd, Pepper and Moorehead). Interestingly, she determined only 13 burials (one infant, one child, two adolescents and seven female adults) had sufficient data to include in a description of Bonito burial patterns. Akins' later work (2003) indicates 131 burials at Bonito, but as she does not enumerate these by room number I have found it impossible to determine from where the additional data derived. The Chaco Research Archive (CRA — accessed March 2016) indicates 91 individuals buried in Bonito. I have not pursued the reason for this discrepancy, but the complexities of naming, association (all the issues experienced conducting research at Aztec) are amplified at Chaco. While some of the numbers of inhumation differ slightly, the location of the burials at Bonito seems sound across most of the sources (the chief difference is four burials included in

the CRA database that consist only of a human tooth. Akins did not include these). But it is clear that human remains were found in 18 rooms and two kivas at Pueblo Bonito.

Few great houses inside and outside Chaco Canyon have been excavated recently with data (and publication) to allow for a comprehensive analysis of burial practices. General trends suggest that burials in great house rooms are uncommon. The argument is often made (e.g., LeBlanc 1999) that great house burials are rare and may indicate an absence of habitation. Much of the data for this argument are drawn from excavation at sites in Chaco Canyon, where McNitt (1966) says 302 burials were found, but where the most comprehensive burial report (Akins 1986:152-165) cites some 600-700 total burials for the canyon. Fewkes (1911:77) postulated that Chacoans cremated their dead. The last century of research at Chaco has indicated that cremation was not likely, however, and that burials either did not occur in the canyon or were looted heavily prior to early archaeological work at the beginning of the 20th century (Akins 1986). Akins (1986:13) addresses the issue of the “missing” Chacoan burials. She describes possible scenarios that include small great house populations, poor preservation, early looters, and excavation bias. All of these factors might be extrapolated and applied to Aztec. In essence: there are probably many burials in and around Aztec of which dozens, if not hundreds, have been lost through natural processes, early pothunting, failure to publish, or incomplete excavation of the middens and of various rooms inside the great houses — including subfloors. Consequently, the burials that we see at Aztec derive from the final few years of its occupation and do not represent the entire population.

These data are thus important because they provide both antecedent comparative data for Aztec – where burial data is often better provenienced and recorded. The temporal issue must be dealt with, but it would appear that based upon comparative data listed below, that mortuary practice at Aztec and Bonito had significant commonalities and a number of salient differences, which may be fruitful for interpretation. First: Bonito. Burials at Pueblo Bonito can generally be described in the following tables (compiled from Akins 1986).

Table 5.14: Burials in Pueblo Bonito by Time Period

Sum of # of inhumations	
Time Period	Total
Red Mesa	7
Gallup	13
McElmo	1
Unknown	56
(blank)	21
Grand Total	98

Table 5.14 indicates similar sampling and dating issues with mortuary contexts at great houses, where excavated burials are dated by pottery-style association (if they can be dated). AMS dates recently taken by Plog (2016) and Plog and Heitman (2010) demonstrate that human remains and pottery often share very little temporal overlap. Nevertheless, the apparent trend indicated by this table is a generally higher association (and possible occupation) during the PII period, or the latter portion of Bonito's occupation prior to abandonment.

Table 5.15: Age of Burials at Bonito

# of inhumations	Total
Fetus	3
Infant	4
Child	17
Adolescent	4
Adult	50
Adult?	17
Unknown	1
(blank)	2
Grand Total	98

Table 5.15 indicates a distribution that differs from Aztec: there are far fewer infants and children at Pueblo Bonito than at Aztec, where they made up nearly half of the burials.

Table 5.16: Bonito Burials by Age and Sex

Burials at Pueblo Bonito by Age and Sex				
Age	Female	Female?	Male	Grand Total
Adolescent	1		2	3
Adult	18	1	16	35
Adult?	1		1	2
Grand Total	20	1	19	40

Table 5.16. This table indicates relative parity in sex in burials at Pueblo Bonito, compared to Aztec.

Table 5.17: Bonito Burials by number of associated whole vessels

# of inhumations	# of Whole Vessels								Total
	1	2	3	4	5	6	7	16	
0	25								25
1	5		3						8
2	3				5				8
3	3								3
4	3								3
5	2								2
6	2								2
8	2								2
9						6			6
10	1								1
14	1						7		8
16	1			4					5
17								16	16
-	3								3
41?		2							2
Grand Total	51	2	3	4	5	6	7	16	94

Table 5.17. This table indicates a relatively high association of whole vessels with inhumations at Pueblo Bonito, compared to Aztec.

Time and Numbers

Bonito and Aztec are both massive, multi-storied great houses, and each has seen hundreds of their rooms excavated. Bonito is bigger by 200+ rooms, and its length of occupation was longer than Aztec by some 200 years. Despite this fact, there are far more burials found within the Aztec West great house than in Bonito. As explained above, it is likely that a number of burials at Bonito disappeared before they were recorded, but even this does not explain the discovery of 103 more burials at Aztec. The mortuary remains demonstrate that the great houses functioned differently in abandonment contents.

Space

Burial spatial organization at Aztec and Pueblo Bonito shares striking similarities. (See Maps. **Fig 5.2** and **5.5**). There are clear areas of high-volume use in specific locations at both sites (the northern and western burial clusters at Bonito, and the Northwest and Southwest wings at Aztec). At Bonito, 1% of the rooms held nearly all the burials found at the site (Akins 1986:15). At Aztec, five rooms contain 20% of all the burials at the site. Clustering in several adjacent rooms increases these numbers statistically. Another similarity between the two sites is that kivas of all types seem to be off-limits or non-desirable for burial. There are two kiva burials at each site: at Bonito they consist of teeth and an isolated femur, while Aztec offers only an isolated skull and the burned bodies from Kiva D.

Sex

The Aztec West great has twice the number of females represented as males (F = 18, M = 9) (When all of the burials are considered both inside and out of the great house, this number levels slightly F = 30, M = 16). At Bonito, the division is more equal, but still slightly weighted toward female burial at the site (F = 21, M = 19).

Age

The two sites have little concordance in age distribution. Aztec's burials include equal numbers of young and old, and there is no clear delineation of burial disposition

or associated grave goods based upon age. Conversely, Bonito has very few burials of infants or children, and those that are present on the site rarely include significant numbers of associated grave goods.

High-status Burials — Chaco and Aztec

Burials at Bonito tend toward feast or famine, as 34% have zero or one associated whole vessel, while 50% have fully five or more vessels per inhumation. Beyond pottery vessels, the amount and degree of associated burial goods are particularly sumptuous, with at least 12 inhumations associated with thousands of beads, inlays, exotic vessel forms, macaw feathers and copper bells. One burial in particular was associated with 41 whole vessels. While Bonito is rich in aggregate and clearly has a number of possible achieved and ascribed high-status burials (Plog and Heitman 2010, Herrod and Martin 2012), Aztec too, has demonstrably high-status burials.

Neil Judd, one of the first systematic excavators of Pueblo Bonito, thought it possible that there were many more high-status individuals buried in great houses, but that high-status burials had been purposefully or even systematically vandalized (Judd 1954:339-40), in a manner similar to that seen at Aztec in Room 110/111. Fewkes (1911:77) postulated that others of high status may have been cremated, or that cremation was saved for particular high-status burials, though Miles (1975:ix) disputes this assertion and believes that some of the early burials found at Mesa Verde likely constituted high-status individuals based upon associated grave goods. Frisbie thought

that some burials at Chaco might represent purposeful sacrifice and were layered into rooms en masse — but he did not say to what purpose, suggesting only that the sheer number reflected a single, mass, near simultaneous death of a large number of the population. At Aztec, Room 41 (with 13-15 children and infants) may provide possible evidence of sacrifice, particularly with its rich inclusion of grave goods. Conversely, it may also represent an epidemic or other event that afflicted the youngest inhabitants of Aztec.

From the exchange of letters between Morris and Wissler in 1917, described at the beginning of this chapter, we learn of a burial at Aztec that seems to mirror a particular kind of high-status burial at Chaco. When Morris was given permission to excavate areas around and outside the monument, he found and catalogued specimens from 12 sites in the vicinity along with the West Ruin collections (EHM Field Catalogue). In the catalogue to the collection, he described finding a large, thick-walled corrugated jar and a Mesa Verde mug associated with the skeleton of an adult in an ancient rubbish heap. The circumstance of most interest to Morris was that the grave pit was roofed and the vessels had been placed on top of it. Such behavior was not a usual practice among the Anasazi (Lister and Lister 1990:42-43; 1969). Roofed or crypt burial was only found otherwise in the high-status burial complex of Room 33 in Pueblo Bonito — indeed, this instance at Chaco provides the *best* evidence of high-status burials in the Chaco region. It is not clear what the significance is of its emulation at a small extramural site near Aztec 400 years later, but it is just possible that the find at Aztec may indeed point to subsequent looting of the burials at Chaco (and the re-creation of the type at Aztec).

While it seems clear that there were a number of status burials at Aztec itself, it is notable that the practice did not occur in other areas that were ostensibly within the sphere of Aztec's influence. McNitt (1966:41) notes that there were no high-status burials found in either the Mesa Verde or Kayenta regions at this time, though the Burial of the Magician (McGregor 1943:295) and another burial at Dominguez Pueblo (Reed et al. 1979) would seem to dispute this assertion. It is safe to assume that, in general, high-status burials are extremely rare. Pre-Aztec burials, however, did seem to include high-status individuals that date back to Basketmaker II (Frisbie 1978:206-207). In addition, Frisbie argues that dogs may be indicative of status and may have substituted as offerings for people (Frisbie 1978:207). At Aztec, a dog was walled into Room 189 (and attempted to scratch its way out, to no avail) (Morris 1928:372).

In general, high-status individuals at Aztec were buried in rooms; they were mostly unburned (or burned subsequent to their burial, after a period of time had passed); they might be buried as a single inhumation or in groups of as many as 15 (a unique case, all children). The common, universal phenomenon that indicates their prestige is their association with high numbers of whole vessels and preciosities.

A number of factors complicate the archaeological record, and "in some instances, ascription to high status may be falsely assigned, while in others it may be denied" (Frisbie 1978:204). For instance, not all symbols of status used in the funerary proceedings find their way into the archaeological record, nor once there are they equally well preserved. If the only symbol used to differentiate "high" from "low" status individuals in death in a certain society is non-tangible (performative, prayer-based,

etc.), then archaeologically the distinction might not be in evidence. Differential preparation of the individual prior to interment, elaborate grave construction, or specialized mortuary artifacts are all symbols which would be preserved archaeologically, however. Significantly, the latter seem to be in abundance at the five graves exhumed at Aztec listed above.

Other issues related to labeling high-status burials have to do with sampling. "Some societies inter people of similar status in distinct areas of a site, segregating the deceased social groupings in space. Excavating only one such area would yield burials with considerable symbolic homogeneity and would leave one with the impression of egalitarian principles of social order for the total society, whereas this might not have been the case" (Hatch and Willey 1974:108-109). At Aztec, much of the Western Wing was not excavated, and Morris attributes to this fact an incomplete understanding of the site and its burial practices. While its excavation would no doubt reveal more burials, nonetheless a significant portion of Aztec was excavated, and the number of burials now available for examination (275) should perhaps dispel this concern about inadequate sampling.

If these individuals were, indeed, high-status inhabitants of Aztec, then as a group they shared status and treatment that were not experienced by most of the inhabitants at Aztec West. These high-status burials are not limited to a single locale in Aztec West, not concentrated in a particular area of the site or a single room. This is in contrast to the burials at Bonito, where high-status burials were located only in the north-central and east-central portion of sections of the oldest part of building.

In general, the status burials identified above are spread throughout the site, and their associations and dispositions are also diverse. This suggests that status recognition in 13th century Aztec was a complex phenomenon. The majority of these burials contain two or more individuals (Room 52 and Room 141 contain many more — to the extent they should perhaps be classified as mass burials). It is significant that greater wealth seems to cross-cut age and sex — although males do apparently have a majority of high-status burials at Aztec. This is particularly interesting in light of the overall bias toward females in Aztec's burials: the preponderance of high-status male burials is certainly significant. Morris believed the Warrior (buried with shield, weapons, pottery), represents an individual (male 6' 2") with ascribed status garnered from “personal achievement rather than as official or societal sanction” (Morris 1924a). For later researchers, the high status of the Warrior was ascribed based upon stature and grave goods (Harrod et al. 2012). Here is an instance, then, of a male who may possibly have earned his status through societally valued behaviors.

It is interesting that status burials are not limited to adults. McKenna (1988) postulates that the crypt burials in Aztec's Room 141 may represent “lineage related” burials with specific ascribed space dedicated to individuals' burials. This presence at Aztec of high-status children's burials is in direct contradiction to practices recorded at Chaco. They suggest that the inhabitants of Aztec may have ascribed status to individuals based on family and remembered achievements of the past, not just on the behaviors of living individuals. If this is true, it may indicate a significant societal shift in values. If, conversely, they indicate value associated with such a behavior as child

sacrifice, they may suggest rather that the inhabitants of Aztec were facing rather more difficult and challenging times than had their counterparts at Chaco. This remains a question for future research.

Inconsiderate Burials

There are no burials in Pueblo Bonito proper that clearly indicate inconsiderate treatment. One adult male in Room 33 showed evidence of a violent death, but his burial was careful and sumptuous despite the manner of his death. Several burials may have been purposefully disturbed; this is a phenomenon that Pepper (1920) attributed to grave robbing and Judd (1954) indicated may have been a byproduct of the collapse of the site (or what would later come to be understood as the Chacoan system). Although it is possible the data were not as often photographed, nor as thoroughly recorded as other types of burial, inconsiderate burials are explicitly identified at Bonito by early excavators. Two examples of inconsiderate burials outside Bonito exist, however. There is a clear case of violence up canyon near Fajada Butte at 29SJ1360 (McKenna 1984), where it appears that an extended family was forced into or held in a burning pithouse and killed. Additionally, Pepper and his workmen found at least 8 individuals at Penasco Blanco who suffered extreme perimortem injuries and burning, and who may have been the victims of cannibalism (Turner and Turner 1999:95-111).

Aztec offers a considerably different picture. Possible inconsiderate burials at Aztec include the Splinted Skeleton, who demonstrates medical care after a serious injury but also was found with a cantaloupe-sized rock buried between her legs after

death. There are no apparent analogs for this phenomenon in Southwest archaeology (William Walker, personal communication, 2015). However, the post-mortem placement of a rock against the pelvic girdle of a young woman of child-bearing years is likely not coincidental, particularly when she was so carefully placed on the floor of the room (a treatment, as we have seen, often associated with high-status or otherwise special burials). Another post-mortem desecration of a female is seen at Aztec in the case of the burial of an individual found in Room 180 in the West Wing. This bundled middle-aged woman whose pelvis was pierced by a stake driven through her and into the refuse and floor below. This is clearly an overt, purposeful form of inconsiderate burial treatment. It too, has no analogs in Southwestern archaeology (though many related to vampirism in Europe).

Kiva burials are also a relatively rare phenomenon and perhaps should be considered purposefully inconsiderate. In the Mesa Verde region, kiva floor burials are very unusual, and human remains found there often bear signs of perimortem trauma (Woods Canyon Pueblo (Bradley 2002), inconsiderate or careless positioning after death, or even sprawled or face down burial positions (Sand Canyon Pueblo, 12 year old sprawled on kiva floor (Kuckelman 2008)). Remains found in these positions are often associated with site abandonment, violence or migration (Turner and Turner 1999; Larralde 1998; Bradley 1996, Lipe et al. 1999).

Two other inconsiderate burials at Aztec, again with no parallels in the archaeological record, are the individuals who appear to have been trapped or walled into rooms in the West Wing. Both died without burial wrappings or grave goods and

were described as “sitting” against the room wall — an atypical burial position. The better documented case was termed “the dungeon” by Morris, who speculated that the Unfortunate was imprisoned in a room whose doorways were walled and whose ceiling was over 10' high. The person (Morris believed her a woman, though the remains are now lost) was sustained through a 10" wide tunnel cut under the masonry wall that opened onto the plaza. Through this tunnel, Morris speculated that food and water might be passed (Morris 1928:398).

Other instances of inconsiderate burial may also be manifest in a body's placement after death. Prone burials — those buried face-down — are rare at Aztec and in the Southwest in general. The four cases of prone burials in Aztec's great house do not have particularly broad-reaching analogs in the Southwest. In the Mesa Verde Region (north/northwest of Aztec), a prone burial was found at Troy's Tower (5MT3951) (Varien 1999b). Prone burials appear to be more common in Chaco Canyon proper, but never in great houses. Akins (1986:89) notes that overall 31% of those buried in middens at the various small sites she considered were found in a face-down position (N=29), though she was not certain if these might have been upright, flexed burials which may have toppled. She noted no prone burials at Bonito (n=98) or Kin Kletsin (n=12), a McElmo phase great house (1100-1175) (Akins 1986:102-104).

Nearby regions also rarely saw prone burials in mortuary contexts. In the Sinagua region during the Elden Phase (1150-1200), an analysis of 159 burials indicated that 95.8% of burials were inhumations that were interred extended or supine. Only one case (0.62%) was buried in a prone position (Hohmann 2004:08). In the Tonto Basin

(750-1325) (n=157), Loendorf found that 90% of burials were in an extended supine position, and the high-status burials were most likely to be found in this grouping. Other positions were rare, and if found, they seldom had associated grave goods (Loendorf 2004:127).

At Aztec, there are four (2%) face-down or prone burials — a relatively high percentage, if still rare overall. These are in Room 195 (Burial 26), Room 183, (Burial 107), Room 150 (Burial 43) and the unknown burial seen in photo 119767. Does the phenomenon of face-down burials represent an “inconsiderate” interment? The data at Aztec may provide some of the best evidence to assess this question. In one photo of Room 185 (Burial 136), the individual male is prone with his face in a bowl. Associated with him, and also nearly procumbent, though not categorized by Morris as such, is another individual whose vertebral column appears to have been removed. This, too, is a phenomenon that has no clear archaeological correlates, but initial investigation into ethnographic parallels began my exploration of how it might be possible to explain all the inconsiderate burials at Aztec (a fuller explanation in the next section).

VII. Mugs, Mortuary Data, and an example of Multimodal analysis and Microhistory

An unusual phenomenon identified at Aztec is the number and context of Mesa Verde black-on-white mugs (hereafter B/w). Morris and others found 37 intact mugs associated with burials in and around Aztec (many more sherds of mugs were found, but a few isolated examples have not been analyzed). Mugs represent a relatively unusual form in Pueblo pottery style. They are sharply bracketed in time and space: their form

was only found and used in the Northern San Juan region from about 1150-1300.

Cattanauch (1980:202) believes the mug to be “a late development, derived from the earlier pitcher.” They are relatively uncommon at Chaco, and after the mass migration out of Aztec and the northern San Juan region as a whole, the mug form did not persist (Lipe 2009).

Arguments surrounding the brief appearance and use of the mug are myriad and include the suggestion of overt, purposeful refusal to bring old forms to a new place and suppressed migrant material culture that indicated identity (Ortman 2013). Mugs have a checkered history and may have been used in association with practices that included violent acts. In at least two occasions, human blood residue and brain have been identified in mug interiors (Putsavage 2015).

Bradley (1996) suggests that the Mesa Verde mug is a revitalization vessel form that has its roots in the Chaco cylinder vessel (**Fig 5.6**). He argues that after Chaco collapsed in 1150, the mug form (essentially the upper portion of the Chaco cylinder vessel) persisted in the Mesa Verde region as a revitalization moment that hearkened back to Chaco. Wallace (1966:157-163) argues that there are ten stages to a revitalization movement: a steady state, a period of increased individual stress, a period of cultural distortion, a period of revitalization, the formulation of a code, communication, organization, adaption, cultural transportation, routinization, and steady state. He goes on to argue that some cultures show a predisposition for revitalization movements. These include “adaptations to war or natural catastrophe, uncontrolled innovation, segmentation resulting from factionalism, class and caste

differentiation, age and sex distinctions, regionalism, or even individual differences” (Wallace 1966:211).

In his research at Sand Canyon Pueblo (a contemporary of Aztec near Cortez, CO) and Mug House (atop Mesa Verde — also a contemporary), Bradley found a number of Mesa Verde B/w mugs in contexts that he argues were not utilitarian. “The occurrence of Chaco-McElmo black-on-white pitchers with burials, and in association with other rare artifact forms, indicates that the pitchers' final use and probably main function, was ritual” (Bradley 1996:253). Bradley's argument is bolstered by the similarity in form type with Chacoan pitchers and their association with the opulent, high-status burials in Room 33 at Pueblo Bonito (which are now associated with high-status trade goods like cacao) (Crown and Hurst 2008).

It seems, then, that Chaco pitchers developed into the Mesa Verde mugs and maintained their function in ritual contexts and as common discards in mortuary contexts. La Bane argues (along the same lines as Wallace) that historical movements that harken back to the “good old days” can often be seen in the archaeological record as revivalism movements. Thus periods of “stress, trauma, and wounded narcissism invariably thrust both individuals and societies back into autistic preoccupation with the old and intimate” (La Bane 1970:305). Such rituals and symbolic behavior are associated with “certain current or remembered elements of a culture [which] are selected for emphasis and given symbolic value” (Linton 1943:231). This may be one possible explanation for the mug's appearance at Sand Canyon and Aztec.

What does this mean for Aztec? The following close analysis of a single vessel type, an application of microhistorical approaches, concerns context and narrative. Mugs are found at Aztec (and other sites) in unusual, ritualized contexts, sometimes with unusual residues. At Aztec, they are strongly correlated with inconsiderate burials manifest by post and peri-mortem corporal abuse.

The broader, regional narrative is that these burials occurred during political, religious and social upheaval at the end of the 13th century. The effects of this upheaval are manifest at Aztec in the instance of Kiva D's burials and burning as well as the broader firing of the West and North Wings. Breakdown and disorder during this period were region-wide. As violence increased (Kuckelman 2006; Turner and Turner 1999), sites became fortified and defensive (LeBlanc 1999), and out-migration occurred (Glowacki 2006; Ortman 2009; Varien and Kohler 2010). These are relatively undisputed elements in the historical narrative of the region as the Post-Chacoan political order collapsed on the heels of major regional drought (Lekson 2015; Bustard 2008:80).

If, indeed, the mug is representative of a revivalist movement growing from an earlier (11th and 12th century/PII) Chacoan form, it may be the material expression of an identity, a history, or some other socially meaningful phenomenon that recalled Chaco as a better, more stable, more prosperous, more orderly time. Conversely, if Chaco or its memory, descendants or perpetuators still lingered at Aztec and other sites during this period of unrest, drought, violence and dissipation, the mug may have been viewed as a representation of what went wrong and might even be associated with blame for the discord.

Here is where Aztec's extensive excavation and excellent legacy data come to bear on the hypotheses derived from comparative data. Inconsiderate burials make up fully 10% of all burials at Aztec, an unusually high percentage. There are 37 complete or nearly complete mugs from Aztec 25 are found within the great house. 11 (44%) of these are found with inconsiderate burials, 14 are not. The mugs are not found in particularly ritual contexts (only one found in a kiva, possibly associated with a burial), but most are found inside rooms. 60% of inconsiderate inhumations are found with mugs. If the cremation burials, where no artifacts (of any sort) were recorded, and the two individuals who were walled into rooms are discounted (they, too, were found without associated artifacts or evidence of purposeful burial), then *80% of inconsiderate burials have mugs placed adjacent to them*. It is very likely these burials are from the 13th century. The correlation of mugs with inconsiderate burials at Aztec is demonstrated to be statistically significant.

Observed		Type: Normal	Type: Inconsiderate	Total
Mug	Present	23	14	37
	Absent	161	9	170
	Total	184	23	207
Expected				
Mug	Present	32.88	4.11	37
	Absent	151.11	18.88	170
	Total	184	23	207
	Chi-square	1.1413		

Inconsiderate burials of the Chaco/Post-Chaco period from the San Juan Region have never been analyzed systematically. Some burials have been assessed as examples of cannibalism (White 1992; Turner and Turner 1999) or analyzed for evidence of warfare (Kuckelman et al. 2002), of accidental but nevertheless violent death (Akins 2008), and of witchcraft (Darling 1998; Walker 1998). Comparative analysis of those data with the inconsiderate burials at Aztec indicates that socially-sanctioned events like violence and witchcraft may explain the mortuary context for a number of individuals.

Ethnographic research from Pueblo communities over the last 150 years illustrates that deviant or anti-social behavior can result in an array of punishments for crimes that include murder, cannibalism and child corruption. Punishments in Pueblo communities could include execution (Darling 1998), beating (Walker 1998), ostracism (Sanders 2003), and fines (Darling 1998; Sanders 2003). The former — the only one that might be visible in the archaeological record — could result in burning, defleshing, crushed elements of the skeleton, and removal of the vertebral column (Darling 1998:744).

Projections of modern ethnographic practices onto the past are, of course, troublesome (Spielman 2005; Upham 1987; Wobst 1978), and all too often misapplied in other contexts (Lekson 1988). The inconsiderate burials seen at Aztec are best explained as results of peri- and post-mortem treatment of individuals whose behavior, association, or identity warranted such treatment. Darling (1998) and Walker (1998) attribute burned, defleshed, and crushed burials to witchcraft, but they both also allude to social pressures such as drought, famine, warfare or other types of social unrest that

may have led to violence, captive-taking or blame and resulted in unusual interments of those held responsible for the discontent or instability. This is borne out in the archaeological record (LeBlanc 1999) and is also seen in the ethnographic and historic record (Darling 1998). Thus, we may well assume that at least some of the burials (and possibly deaths) examined in this analysis may have resulted from social unrest.

“Clearly, people accuse others of being witches for various reasons, real or perceived; and the outcome is often similar cross-culturally — witches are punished to restore order” (Tiesler and Cucina 2007:46).

That these burials are associated with a pottery form that is the potential hallmark of a political order (Chaco) that was on the decline, during a period clearly marked by unrest and violence, may make a strong argument that certain individuals who lived at Aztec in the 13th century may have been blamed for the strife seen throughout the region. Why these individuals may have borne the blame is lost to history, but their deaths were commemorated by ill-treatment (burning, stake through pelvis, rock at pelvis, prone, mutilation), and in *most cases* the purposeful placement of a mug near their bodies. Archaeological, ethnographic and pan-regional data generally fit this hypothesis: Aztec provides archaeological evidence of witchcraft with a plausible causal explanation. This hypothesis necessitates further analysis, but it serves as an example of possible application of multimodal approaches to legacy data and how microhistories can contribute to broader regional narratives.

VIII ...Dust to Dust

The burials of Aztec provide one of the richest sources of information currently available in the Southwest for considering and analyzing human behavior in the post-Chacoan period. The data from Earl Morris' records ARE unparalleled in quantity and quantity of information. The appendix to this chapter, and the discussion above, highlight the potential of these data for reconsidering fundamental dating questions, the role of social memory in human practices, ritual practice, status and status signifiers, social control, response to trauma, and much more. In the context of this dissertation, it has been possible only to scratch the surface. Overall, this effort demonstrates the tremendous value of data mining and multimodal approaches. IT creates a wealth of information that will provide opportunity for fruitful analysis to scholars for years ahead.

Chapter 6: Sweet Corn, the “Splinted Skeleton,” and the Mysteries of Room 139

I. Introduction

Just as Chapter 4 examined Kiva D to reveal its life history, closure and burning, burials, etc., so too will a microhistorical approach be applied to Room 139, a small interior room on the northwest corner of the great house. As before, photographs and notes will be combined with new forensic analysis, AMS dates, and artifactual data to assess this single room as it relates to Aztec's history. In the case of Room 139, which was filled with perishable items and contained the burial of a severely injured woman, a detailed analysis tells us about an elite burial with unusual characteristics and a surprising ear of corn that may change our ideas about when this particular variant was introduced to the Southwest. In turn, these finds have implications for elites' access to specialized foods at Aztec, the treatment of women, the possible practice of witchcraft, and the true significance of mugs.

Room 139 is located at the junction of the North and West Wings of Aztec West and was excavated by Morris in the late summer of 1919. Morris “broke through” one of the two sealed doorways that led into Room 139 from the room immediately to the north (Room 143) but instantly retreated when he saw the precarious nature of the ceiling. Room 139, the ground floor of a two-story section of the building, was spanned with vigas made of juniper/cedar, rather than the traditional and sturdier pine. The builders had doubled the supports because, as Morris suggested, they were clearly aware of the “the brittleness of this kind of wood” (Morris 1928:366) and its tendency

to collapse under significant weight. Morris and his crew were forced to stop work in order to remove seven feet of fill from the room immediately above (Room 128-2). Even after this weight was removed, the supports on the south side of Room 139 still collapsed under their own weight, and it was a minor miracle, Morris thought, that they had not done so before (Morris 1928:367).

The roof supports had preserved a room remarkable for two reasons: (1) the presence of thousands of unspoiled perishable artifacts that included a near-pristine example of an ear of sweet corn (see Chapter 6); and (2) Grave #27, dubbed the “Splinted Skeleton,” a partially mummified young adult woman found along the east side of the room. She was flexed, lying on her left side with her right arm crossed over her body and laid across her badly broken and medically-treated splinted left forearm (**Fig 5.10**). I selected this room for further analysis in part because of the unusually detailed records kept of the room and its excavation, including three photographs and numerous notes.

We can only speculate why the room received additional attention from Morris, but the fact that it was undisturbed and located in an area which had been ransacked forty years before by local pothunters (Howe 1947) may have prompted Morris to be more particular with his recording methods.⁶ Over 250 catalog numbers were assigned to finds in the room — including many single numbers to bulk objects such as potsherds, bundles of corn husks, yucca strips, quids, etc. Some of the potsherds and smaller items

⁶ Morris often alluded to the rooms in the Northwest section that had been potted as 'lost to history' and believed that they likely housed the 'elite' members of the population. (Morris 1924a: 164)

seem to have been discarded or lost in transit (Morris crossed out a number on his original Field Log notebook, or stenciled “Lost” to the side). Without a more thorough examination of the remaining collection in American Museum of Natural History, it is impossible to say for certain how many artifacts were recovered from this single room, but my estimates suggest the number was in the low thousands. Besides a rich artifact sampling, Room 139 is one of the most thoroughly photographed and published in all of Aztec Ruin, with three plates, 1215 words about Grave 27, and 600 words about the disposition and excavation of the room.

After three seasons of shipping artifacts via train back to New York, Morris had become more adept at packing and labeling objects so that they would not break in transit or be stolen en route. Consequently, the finds from Room 139 arrived relatively complete and intact in New York in November of 1920. Various portions of these artifacts have been examined and published. The whole vessels associated with the Splinted Skeleton were examined by Reed et al. (2005), a number of the woven perishables were examined and discussed (Webster 2008), and an ear of corn was shipped to an expert in Iowa and examined (Erwin 1934, 1951). No additional publications, artifact analyses, or synthetic studies about the room or its contents exist.⁷

⁷ To the best of my knowledge. Some proprietary data related to NAGPRA may include subsequent analysis of the Splinted Skeleton. But a relatively thorough review of the available data and discussions with NPS and AMNH employees has not yielded further data on this burial.

II. Nature of the Evidence

Photos	Four photographs were taken during excavation of the room. One was taken of the roof (partially dismantled) from the room above. (Fig 6.1) One was taken from the south doorway of the entirety of the room with the Splinted Skeleton at the right (east), the partially blocked doorway to the north, and the remaining refuse (Fig 6.2). And two photos were taken of the skeleton itself (from different angles). (Fig 5.10) After excavation — indoors somewhere, and quite possibly in the AMNH lab — three photos were taken of the portions of the left forearm (Fig 6.3) of the Splinted Skeleton and her splints. (Fig 6.4 a,b,c) All but two of the photographs have been previously published.
Maps	No maps of the room are known to exist.
Notes	Line drawings (author unknown) of the splints with both plan and cross-section views were made (Morris 1924a:218). Six pages of typed inventory that detail the contents of the room, and which include Morris's original field numbers.
Letters	Five letters between Morris and A.E. Erwin discuss the nature of the sweet corn cob found in the Room. One letter from Pliny Goddard notes the arrival of the skeleton at AMNH, and its relatively good state of preservation, despite it still being “a little damp from the plaster.”
Published	Morris provided a detailed (5 page) analysis of the “Splinted Skeleton” in his 1924 publication; this is the most analysis he afforded any burial found on site.

III. Analysis of Written Text and Photographs

Floor	(Fig 6.2) Morris does not discuss the presence of more than a single, prepared floor upon which both the burials and artifact assemblage was found. The floor appears to be level, and prepared with adobe/mud plastering. A fine layer of ash or dirt (unclear) appears to be immediately atop the floor. No features were described or photographed.
Walls	(Fig 6.2) The north and south walls appear to be Type 3 McElmo masonry (Fig 4.12). The east wall — or what remains intact — is Type 2, typical of the earlier construction phase at Aztec West.
Fill	(Fig 6.2) Morris recorded the floor as covered with a thin layer of dust, upon which the Splinted Skeleton lay, followed by large quantities of dried refuse (1 m deep against south wall, 30 cm against north). Photos show that much of the fill was left in situ against the west wall, and it may have been piled or scraped there

from the eastern half of the room. Artifacts visible in the refuse include an arrow shaft, corn, and a single pot rest. Presumably this refuse contained some of the artifacts that were subsequently collected and recorded from this room.

- Burials** Infant (incomplete) and young female adult. These were assigned the numbers Burial 28 and Burial 27 respectively.
- Roof** (**Fig 6.2**) The roof was supported by a pair of juniper vigas running east/west, placed in the southern 1/3 of the room. Atop these were 24 latillas (eight groupings of three) that spanned the room from north to south. Atop this was cedar bark and adobe which sealed the room and formed the floor of the room above.
- Doorways** (**Fig 6.2**) A partially sealed rectangular doorway is visible in the center of the north wall, 51 cm above the floor. This is the door that was breached by Morris when he was the first to enter the room in the summer of 1919.
- Artifacts** (**Fig 6.5-6.6**) 251 field specimen numbers were assigned to artifacts collected. Many of those assigned contain more than one artifact (e.g., potsherds, corn grains, beans, feathers, etc.). A complete listing of the field specimen numbers — taken from Morris's notes — is listed in the table below (**Table 6.1**).

Table 6.1: Specimens from Room 139. Morris Artifact Catalog 1919 (CUMNH_ARCHIVES277-282) (original notations, spelling maintained)

Morris's FS #	Artifact Description
2873	Bowl; black-on-white. Incomplete
2874	Bowl; black-on-white. Incomplete
2875	Bowl; black-on-white. Incomplete
2876	Bowl; crude, undecorated. Incomplete
2877	Dipper; black-on-white
2878	Potsherds
2879	Human hair
2880	Corn grains
2881	Corn nubbin in husk
2882	Ear of sweet corn in husk
2883	Beans, some in pod
2884	Interior of cotton ball?
2885	Egg shell; seeds, miscellaneous
2886	Pumpkin shells
2887	Portion of plant with mature flowers
2887a	Bundle of grass, tied with yucca

2888	Bundle of roots (?)
2889	Twig, doubled and knotted
2890	Twig, made into roll, wrapped and tied
2891	Twig, made into roll, wrapped and tied
2892	Two twigs. Wrapped and tied
2893	Bundle of splints, lashed and tied
2894	Bundle of yucca leaves, tied about center
2895	Bundle of corn leaves
2896	Bundle of corn leaves
2897	Herbs tied in links of yucca chain
2898	Bundles of herbs, wrapped and tied, small
2899	Bundle of herbs, wrapped and tied with yucca
2900	Oval loop of split twig, tied at one side
2901	Yucca strips, knotted
2902	Rings of yucca strips
2903	Chains of yucca strips
2904	Strands of partially separated fiber, knotted
2905	Prepared fiber
2906	Quids of partially prepared fiber
2907	Quids of prepared fiber
2908	Twisted cord. Fine.
2909	Twisted cord. Medium.
2910	Twisted cord. Coarse.
2911	Ring of twisted cord
2912	Twisted cord, done into small bundle
2913	Twisted cord, feather wrapped
2914	Hank of twisted cord, feather wrapped
2915	Hank of twisted cord, feather wrapped
2916	Hank of twisted cord, feather wrapped
2917	Hank of twisted cord, feather wrapped
2918	Hank of twisted cord, feather wrapped
2919	Hank of twisted cord, feather wrapped
2920	Hank of twisted cord, feather wrapped
2921	Yucca cord, feather wrapped; red in places
2922	Twisted cord. Miscellaneous
2923	Braided cord. Yucca
2924	Braided cord. Strips of material undetermined
2925	Braided cord. Coarse. Cedar bark
2926	Braided cord. Coarse cotton cloth
2927	Cotton cloth, button-like ornamentation
2929	Cotton cloth
2930	Cotton cloth

2931	Cotton cloth
2932	Cotton cloth
2933	Cotton cloth
2934	Cotton cloth
2935	Cotton cloth
2936	Cotton cloth
2937	Cotton cloth
2938	Cotton cloth, remarkably fine texture
2939	Cloth sandal, false embroidery on bottom
2940	Cloth sandal, fragment of
2941	Woven sock, very heavy
2942	Woven sock, fragment of (?)
2943	Plaited sandal, very coarse
2943	Plaited sandal, very coarse
2944	Plaited sandal, very coarse
2945	Plaited sandal, very coarse
2946	Plaited sandal, very coarse
2947	Plaited sandal, very coarse
2948	Plaited bag. Sausage-shaped. Incomplete
2949	Plaited basket. Incomplete
2950	Plaited basket. Incomplete
2951	Plaited rush matting. Many fragments
2952	Plaited pot rest
2953	Plaited pot rest
2954	Plaited pot rest
2955	Plaited pot rest
2956	Plaited pot rest
2957	Plaited pot rest
2958	Plaited square. Basket bottom?
2959	Plaited sheath. End scalloped. Incomplete
2960	Pot rest. Corn leaves
2961	Pot rest. Corn leaves
2962	Pot rest. Corn leaves
2963	Pot rest. Corn leaves
2964	Pot rest. Corn leaves
2965	Pot rest. Corn leaves
2966	Pot rest. Corn leaves
2967	Pot rest. Corn husks wrapped with husk
2968	Pot rest. Corn husks wrapped with husk
2969	Pot rest. Cedar bark
2970	Pot rest. Cedar bark
2971	Pot rest. Cedar bark

2972	Pot rest. Cedar bark Yucca wrapped
2973	Pot rest. Grass. Cedar bark wrapping
2974	Pot rest. Grass. Yucca wrapping
2975	Pot rest. Bark variety undetermined
2976	Pot rest. Miniature. Materials undetermined
2977	Ring, small. Yucca cord
2978	Ring, small. Yucca cord
2979	Ring, small. Yucca cord Feather wrapped
2980	Ring, small. Cedar bark
2981	Ring, small. Yucca
2982	Ring, small. Yucca
2983	Rings (10) size of finger; husk and cord
2984	Withe ring laced across with fine yucca meshwork
2985	Withe ring laced across with fine yucca meshwork
2986	Coiled disk, small, beginning of basket
2987	Flower; made of corn husks
2988	Flower; made of corn husks
2989	Flower; made of corn husks
2990	Flower stem; peeled twigs, plumes undetermined
2991	Flower stem; peeled twigs, plumes undetermined
2992	Flower stem; peeled twigs, plumes undetermined
2993	Flower stem; peeled twigs, plumes undetermined
2994	Flower stem; peeled twigs, plumes undetermined
2995	Hair brush of yucca strips
2996	Brush of cedar bark
2997	Torch of cedar bark
2998	Cob, wrapped with cedar bark
2999	Flower-like object 'owl charm' of Navajo
3000	Flower-like object 'owl charm' of Navajo
3001	Flower-like object 'owl charm' of Navajo
3002	Square of rush stems. Plaiting just begun
3003	Reed arrow. Feathers missing
3004	Reed arrow. Feathers missing
3005	Reed arrow. Incomplete
3006	Reed arrow. Incomplete
3007	Reed arrow. Nock end
3008	Reed arrow. Nock end
3009	Reed arrow. Portion of shaft
3010	Reed arrow. Portion of shaft and foreshaft
3011	Reed arrow. Portion of shaft and foreshaft
3012	Foreshaft of reed arrow
3013	Reed. Wrapped with yucca

3014	Reed-stem cigarette
3015	Sunflower stalk. Ends cut. Pith removed
3016	Piece of cottonwood root
3017	Piece of worked wood
3018	Slab of worked wood. Small
3019	Slab of worked wood. Small
3020	Slab of worked wood. Small
3021	Slab of worked wood. Small
3022	Slab of worked wood. Small
3023	Heavy pine slab. Worked to semblance of plank
3024	Worked stick; both ends pointed
3025	Work stick; long, slender
3026	Work stick; curved
3027	Cylindrical plug of wood. Short, thick
3028	Stick; split. Wrapped at end of split
3029	Stick; split. Wrapped at end of split
3030	Wooden baton
3031	Wooden baton; ends charred
3032	Head of ceremonial stick
3033	Head of ceremonial stick
3034	Head of ceremonial stick
3035	Curving piece of wood, flattened. Very hard
3036	Hook-shaped piece of wood, flattened. Handle? Incised pattern on both sides
3037	Wooden ladle
3038	Stick bound to quill of feather
3039	Stick bound to quill of feather binding coated with adobe
3040	Stick wrapped with yucca
3041	3 sticks and piece of tanned hide. Wrapped with cord
3042	Cob. 2 sticks bound along opposite sides
3043	Sinew cord, twisted, long. Bow cord?
3044	Feathers, probably of turkey
3045	Quills, large. Bundle bound with cord
3046	Quills, pierced and strung on cord
3047	8 quills, pierced and lashed together with cord
3048	[this number is not included on list. Simply skipped]
3049	Pieces of hide with hair on
3050	Pieces of hide; soft tanned
3051	Pieces of hide; hard tanned
3052	Strings of hide
3053	Foot covering of hide. Shows mark of sandal
3054	Moccasin sole, portion of

3055	Piece of hide — 2 ply, sewn together
3056	Piece of tanned hide; elk or buffalo
3057	Membrane sack, filled with earth
3060	Piece of worked antler
3061	Piece of worked antler
3062	Piece of worked antler
3063	Piece of worked antler grooved for splitting
3064	Blade of sheep horn. Shape of tcamahia
3065	Ladle of sheep horn. Incomplete
3066	Femur of rabbit. Ends square cut
3067	Awl. Mammal bone
3068	Awl. Mammal bone
3069	Awl. Mammal bone
3070	Awl. Mammal bone
3071	Awl. Mammal bone
3072	Awl. Mammal bone
3073	Awl. Bird bone
3074	Tube. Bird bone
3075	Tube. Bird bone
3076	Tube. Bird bone
3077	Tube. Bird bone
3078	2 rabbit femora, strung on cords and lashed to 2 sticks which are bound together
3079	Pot. Small, Unbaked
3080	Bowl. Miniature. Unbaked
3081	Bowl. Miniature. Unbaked. Distorted
3082	Bowl. Miniature. Unbaked. Incomplete
3083	Fragments of unbaked vessels
3084	Sphere of unbaked clay. Small
3085	Sphere of unbaked clay. Small
3086	Sphere of unbaked clay. Small
3087	Sphere of unbaked clay. Small
3088	Semblance of human face, Unbaked clay
3089	Cylindrical plug of clay. Moulded in husk
3090	Gilsonite ornament. Fragmentary
3091	Selenite ornament. Fragmentary
3092	Piece of worked hematite
3093	Arrowpoint
3094	Arrowpoint without notches
3095	Chipped flake of jasper
3096	Chipped knife blade. Crude. Incomplete
3097	Pecking stone

3098	Pecking stone
3099	Pecking stone
3100	Groover [sic] hammer
3101	Cobblestone spall. Bound with twig-like haft
3102	Grooved axe. Inc. tcamahia stone
3103	Polishing stone
3104	Rubbing stone, like whetstone
3105	Arrow straightener. Sandstone
3106	Tcamahia or skinning knife. Incomplete
3107	Piece of sandstone. Cord attached. Plumb bob?
3108	Piece of adobe strung on cord. Plumb bob?
3109	Mammal bone awl
3110	Bird bone awl
3111	Polygonal piece of bone, edges worked, part of scapula
3112	Human rib
3113	Pottery disk. Small potsherd, edges ground
3114	Pottery disk. Small potsherd, edges ground
3115	Pottery disk. Small potsherd, edges ground
3116	Potsherd, drilled. Mending tie of cord in place
3117	Bird head. Pottery
3118	Skeleton of young adult, female. Removed as found. Grave 27. Traces of 3 wrappings; cloth; feather cloth; rush matting. Left side of pelvis crushed. Left radius and ulna broken and set. Splints in place.
3119	Bowl; black-on-white. Grave 27
3120	Bowl; black-on-white. Grave 27
3121	Bowl; black-on-white. Grave 27
3122	Mug; black-on-white. Grave 27
3123	Skeleton of infant. Incomplete. Grave 28
3124	Piece of wood, yoke-shaped

Analysis of the complete array of artifacts collected from Room 139 has not been completed. The most widely recognized interpretation of the contents by Morris and others (Reed et al. 2008) is that the assemblage is made up of dry refuse. This seems a reasonable interpretation, but alternative explanations, particularly a consideration of whether the contents of the room may have been associated with the burial, have not been explored.

IV. History of Room 139

Room 139 was built as part of a massive addition to the Central/North Wing of Aztec West sometime between 1118 and 1130. This stage (termed “Stage 3” by Brown et al. (2008) added 2nd and 3rd story rooms to much of the already-built 1st story of Aztec West. This stage also enclosed the building by adding a row of rooms at the southern end of the plaza (**Fig 1.2**). In all, this phase added approximately 175 rooms to Aztec West, essentially doubling the size of the building.

Much of the northwest corner (the junction of the North and West Wings as Morris called them) at Aztec West was converted to sealed burial chambers sometime during the 13th century. At least four chambers, sealed with multiple bodies interred inside, were found in the immediate vicinity of Room 139. These included at least 44 burials (including the Splinted Skeleton of Room 139) that were interred in ten separate rooms, numbers 136-2, 136-3, 138, 139, 141, 143, 153-2, 178, 180, 181, 182. At least two of the rooms (Room 178 and 141) contain high status burials (discussed in Chapter 5).

Masonry in Room 139 appears to conform to what Brown and Paddock (2011) describe as “Classic Type 3” (**Fig 4.12**) found intermittently throughout northern portions of West Ruin and characterized as “tabular sandstone with snapped, scrabbled, pecked, or abraded faces in course-patterned masonry with bands of rectangular stones alternating with semi-coursed bands of smaller, thinner, tabular stones and chinking” (Brown and Paddock 2011:212). They and others (Lekson 1984; Wills 2009; Reed et al. 2011) have long argued the significance of masonry in Chacoan great houses. Debates

include whether the masonry style is dateable (Wills 2009; Lekson 1984), attributable to Canyon builders, an example of local emulation (Clark and Reed 2011), or impacted by the skill of labor, local materials, or speed of construction (Morris 1928). Often, the nature of these arguments is affected by the degree of preservation and the extent of remodeling in particular rooms.

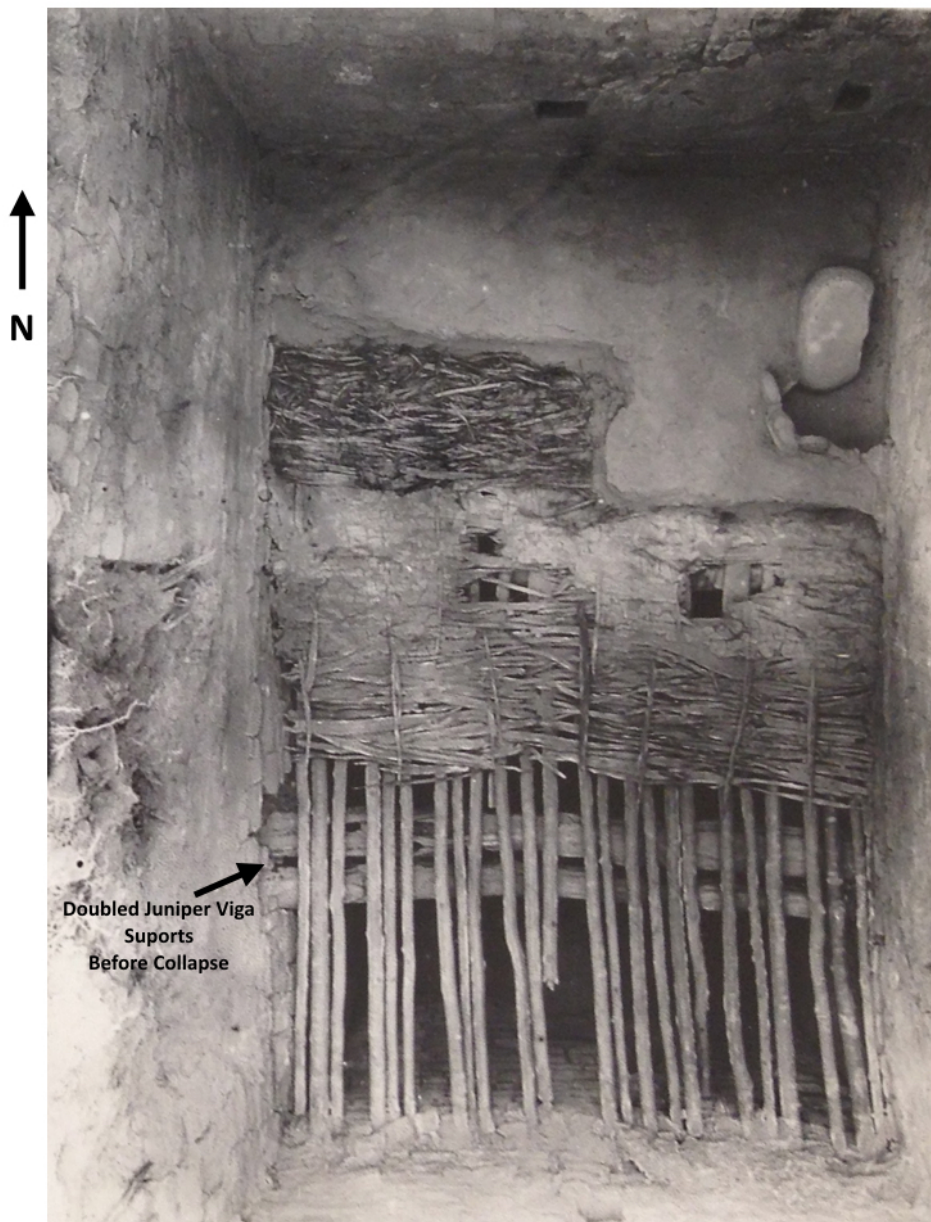


Fig 6.1: Showing partially removed roof above Room 139. The roof was intact and preserved the contents below. North is at the top of the photo.

In the case of Room 139, it appears that the walls have not undergone extensive remodeling. The masonry style of the north and east walls clearly indicates one of the earliest masonry styles found on this site (Type 3). These early construction styles are corroborated by seven tree ring dates taken from the lintel of the southern, sealed doorway between Room 139 and Room 143. These indicate construction around or immediately after 1119 (Windes 2009). The room immediately to the east of Room 139 was remodeled into a Mesa Verde style kiva, probably sometime after 1200. It is unclear whether this remodel had an impact on Room 139, but much of the east wall had buckled and collapsed inward by 1919 (Morris 1928).

Two square doorways allowed entrance to Room 139: one in the center of the north wall, the other center-south. Each had been sealed with masonry from the outside and not unsealed until Morris's entrance through the north doorway during the 1919 field season. The dimensions of the north door, which was sealed from the side of Room 143, are as follows: 2' 3" wide (68.5 cm), 4 ½" tall (137 cm), sill height of 2" (61 cm). The south door is "similar in dimensions," but no other data were given (Morris 1928:367). No other floor or wall features were described or are readily apparent in the photographs, though Morris did note in particular that no ventilators were present.

This exercise in photographic forensics allows for the confirmation that this photo does indeed show Room 139, as the room dimensions, doorway dimensions, description related to ventilators, roof description and other architectural features match the photograph accordingly and can be matched to a modern image of the room. The methods are tedious, and in the case of Room 139, redundant, since the

photograph is well-known and was published in Morris's 1924 report. However, there is at least one other photograph published by Morris (1924a:159, Fig 7) showing an image of a burial (#16) that is labeled as being located in Room 5. This burial is actually located in Room 41, but without analysis (in this case of the associated pottery), a casual observer — and perhaps even a nominal expert — would not recognize the mistake. Consequently, in the case of microhistorical research of small spaces like Room 139, which I argue have significant implications for our understanding of Aztec and the wider Southwest, it is incumbent upon a researcher to confirm even the most obvious detail.

When Morris broke through the north door, he found approximately 8.5 cu feet of dry refuse in the room. I have calculated this volume based on the room dimensions and Morris's description of the refuse as 1' deep (30 cm) at the north wall, and 3 ½' (107 cm) at the south wall. In addition, he ascribed 4-8" (10-20 cm) of rat skeletons and nests against the north wall, and a "thin layer of dust" that had settled from above against the south wall. He gives no description of the state of the floor but says there were 1-2" (2-5 cm) of dust on the floor underneath the bones of Burial 27, the splinted skeleton (Morris 1924a:214). Otherwise, the room had not been disturbed since the time the doorways were sealed.

When the single overview photo was taken (**Fig 6.2**), the overlying refuse appears to have been partially removed and some of it pushed aside in order to expose the Splinted Skeleton against the east wall. This is clear from the description of the level of refuse Morris described against the north wall (1') and by using the height of the door lintel (2') estimating that approximately 2' of additional refuse was pushed into the

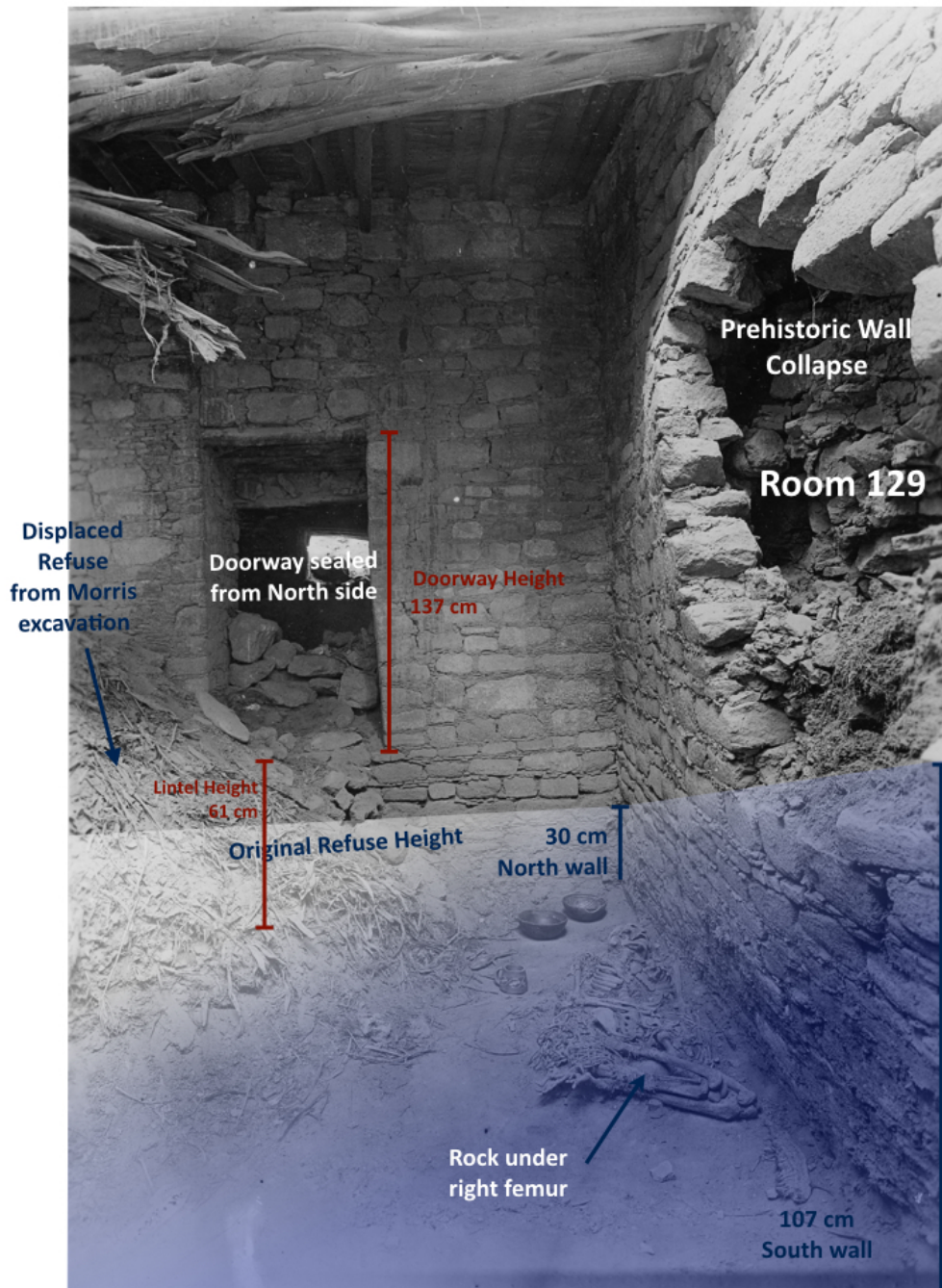


Fig 6.2: Room 139 taken 1918 during excavation. View to north. Refuse pile where sweet corn was found in the pile on left (northwest corner of room)

northwest corner. It is not clear if the refuse at the south side of the room was also re-located, or to some degree removed, before the photograph was taken. The refuse in the photograph has clearly been cut and disturbed and pushed back in order to expose the Splinted Skeleton fully. No levels of thick dust or rats' nests are evident. The

excavation strategy for this room is not entirely clear, but it seems that Morris — on orders from the AMNH staff — chose to target the burial with whole vessels before sorting through the 8.3 cubic feet of mixed refuse. When Morris turned his attention to those piles, however, he discovered hundreds of well-preserved perishable items. His description:

On the floor of the Room was dry Mesa Verde refuse with a fairly large admixture of vegetable substance, 1 foot deep at the north end and 3 ½ feet at the south. This refuse was very rich in specimens among which were six black-on-white bowls, an undecorated bowl, a black-on-white dipper, potsherds, human hair, grains and ears of corn, beans, seeds, and pumpkin shells, wrapped and tied bundles of twigs, bundles of splints, yucca and corn leaves, bundles of herbs, rings and chains of yucca strips, prepared fiber, twisted cords, some in bundles and some in hanks and feather-wrapped, braided cord of yucca and cedarbark, twelve pieces of cotton cloth, two cloth sandals, two woven socks, five plaited sandals, a plaited bag, two plaited baskets, plaited rush matting, six plaited pot rests, seven corn' leaf pot rests, two cornhusk pot rests, four cedarbark pot rests, two grass pot rests, one bark pot rest, five yucca rings, one cedarbark ring, small rings of cornhusk, two withe rings laced with fine yucca mesh, three cornhusk flowers, a yucca hairbrush, a cedarbark brush, a cedarbark torch, three flower-like objects, nine reed arrows, seven pieces of worked wood, three worked sticks, a wooden cylindrical plug, two split sticks, two wooden batons, three heads of ceremonial sticks, feathers and quills, pieces of hide, four pieces of worked antler, a sheephorn blade and a ladle of the same material, seven mammal bone awls, two bird bone awls, two bird bone tubes, three miniature unbaked bowls, four small spheres of unbaked clay, an ornament of gilsonite and one of selenite, a piece of worked hematite, two arrow points, a chipped knife blade, three pecking stones, a grooved hammer, a grooved ax, a polishing stone, a rubbing stone, an arrow-straightener, a skinning knife, three pottery disks with edges ground, a drilled potsherd, a pottery bird head, and a yoke-shaped piece of wood (29.0-9388-9639) (Morris 1928:366-367).

A small portion of these perishables has been studied (Reed et al. 2005; Webster 2011), but a vast majority has remained in storage since excavation. The one clear exception was the ear of sweet corn, to which this chapter returns later. In addition to the associated burial, Morris assessed the pottery vessels associated with Burial 27.

These included three black on white bowls and a black on white mug, all of which he attributed to the Mesa Verde period.

The features listed above come from the published accounts of Morris's work. However, examination of the photographs taken during excavation allows for observations and speculations about additional data. These additional data help to frame the room's history as it relates to the targeted data for this room. They allow a reanalysis of the Splinted Skeleton and the other associated artifacts, and review how the skeleton and grave goods were manipulated or impacted by post-depositional formation processes as well as impacts by excavation.

Against the north wall, there are clear runnels where water has seeped from the roof above and left lines (dirt, plaster, other organic materials) when it dried. These runnels appear to stop just below the level of the door lintel — about 30 cm above the floor. This is a secondary confirmation of Morris's measurements of refuse height — the runnels would have stopped/been absorbed by dry refuse against the north wall. It is beneath these runnels, where the refuse would have protected the walls that small bits of plaster may be seen.

1. While no floor features are in evidence, beneath the Splinted Skeleton against the wall is a stone visible beneath the right femur and possibly in the floor matrix. If this is not some sort of grave good (one Morris does not mention) it may be part of a floor feature, either a hearth or bin. The absence of a vent, and the fact that the room is not immediately adjacent to an outside wall or the plaza, gives less support to a hearth; but a bin is possible. Small protrusions of rock seen at the burial's knee and left elbow may also be (slight) indicators of additional and associated stone architecture.
2. Morris does not detail the roof construction of Room 139, but it is possible to reconstruct it from his photographs. (Photo # of Roof) shows a flat roof made up of two vigas (and possibly more that have collapsed or were removed

during excavation) that appear to be juniper which support a series of 24 latillas, which in turn were covered with bark and other vegetal material and sealed with mud/adobe. There were no openings in the roof of Room 139 (hatch, or vent) which may have allowed for any sort of fireplace.

There were two burials excavated in Room 139. One of them was an infant (Burial 28) placed in the refuse against the east wall of the room, four feet from the southeast corner. The burial was found 40 cm above the floor, in the refuse heap with its head to the south, incomplete and not associated with any grave goods or vestments (Morris 1924a:167). No other information about this burial survives, nor is it known if the two graves were in any way associated.

The second burial caused something of a sensation. Burial 27, “The Splinted Skeleton,” was extensively written about by Morris in his 1924 publication on burials; it was the only burial to be selected for this level of particular analysis and discussion (**See Appendix 2**). The Splinted Skeleton became quite notorious; it was noted in a 1920 issue of *Popular Mechanics* (Anonymous 1920a and 1920b) and in a 1920 issue of *The American Catholic Quarterly*. Morris believed the young woman was subject to the first formal medical procedure (he termed it “surgery”) in the Southwest (though trepanation clearly predates this burial) and was most intrigued by the mechanics of the splints placed to support the complete, extra-articular displaced transverse breaks of the distal ends of radius and ulna (**Fig 6.3**). Despite the skeleton's fame, however, interpretation beyond “anomaly” was not forthcoming. While the human remains are no longer available for study, the photographs are and allow modern experts to reconsider Burial 27 *in situ*. But before this type of analysis is possible, room

associations, formation processes and the excavation strategy must be studied in order to reconstruct how Morris and his crew excavated Room 139 and Burial 27. This is necessary in order to determine how the contents may have been shifted or moved through the course of excavation, whether or not some data or observations might have been left out of the publication that might now be reconstructible from secondary sources or the photographs, and if any additional work might explain or contextualize the available data.



Fig 6.3: Closeup of Left Forearm break

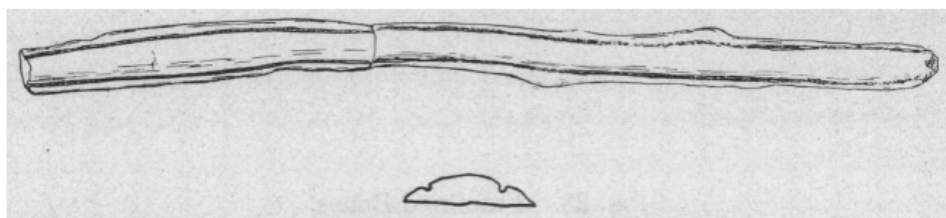


Fig 6.4a, b,c: Close up of 6 wooden splints used to stabilize the broken left arm, and a drawing and cross-section of one splint made by Morris

Excavation Scenario

Based upon his description of refuse levels prior to excavation, it seems clear that Morris identified the location of Burial 27 early on during excavation and targeted it for priority clearance. The refuse at the north and west side of the room, described as 1' deep (30 cm), is clearly piled higher in the photograph than when it was found. The lintel of the doorway, recorded as being 2' (60 cm) above the floor, gives a good known measurement to estimate this height. It is important to discover just *how* Morris excavated Room 139 to see if artifact associations, explanations for placement of certain objects, impact upon artifacts, modification of architecture, etc., can be determined. A reconstruction of what Morris did could thus be useful in figuring out the original depositional sequence and formation processes in the room itself.

The reason for this exercise in speculation is a need to know how the room was altered prior to the three photographs taken of its contents. If the procedures used for the excavation of the room can be determined, it may be possible to understand if and how the burial and its grave goods may have been impacted. This is of particular importance because of an ear of sweet corn excavated from the room and discussed in detail below. Reanalysis of the excavation data may help us determine whether the sweet corn is directly associated with the skeletal remains, whether the pottery vessels were moved or cleaned out, and if the rock visible between the skeleton's legs might have been introduced through excavation.

Scenario 1:

The room had been unused for some time and been open and not maintained long enough for 2-5 cm of dust to accumulate before Burial 27 was placed in the

room. Afterwards, refuse was placed atop the skeleton, and Burial 28 was placed approximately 40 cm above the floor within this refuse. Sometime after this, one or both doorways were sealed and the room was “closed” until 1919.

Scenario 2:

The room had fallen out of use for some time and was being used to deposit dry refuse. During this period, Burial 27 occurred. In order to place the woman on the floor (a pattern seen in most of the burials of this region of the site), the room was entered and the refuse along the east wall was swept away in order to place Burial 27 near to the floor. Refuse continued to accumulate, or was purposefully placed or replaced, on top of the burial before the room was finally sealed and remained undisturbed until 1919.

Scenario 3:

The trash was placed with Burial 27 at the time the skeleton was interred. Burial 28 was also placed, and the room sealed, shortly thereafter.

Based upon the extant evidence, it is impossible to determine with certainty how the room was finally closed.

The evidence available suggests that this room was not used for habitation; the walls and roof were unstained by fire smoke and there are no features in the floor that indicate specific locales of work or storage; no de facto refuse indicates areas of production — though this evidence could have been cleared prior to the interments. The likeliest scenario is that the room was used for storage or left relatively empty — typical of lower-story great house buildings that would have been dark, dank, and potentially wet (Neitzel 2003a). Refuse began to accumulate, and a cursory examination of the potsherds associated with this room indicates significantly high concentrations of McElmo/Mesa Verde (1150-1300) pottery associated with this refuse. Sometime after this period — likely an additional 70+ years — Burial 27 and 28 were placed, likely in accordance with one of the scenarios outlined above, and the room was sealed.

The following discussion will consider in detail the two sensational discoveries in Room 139: an ear of sweet corn and the Splinted Skeleton. Both are remarkable for what they show not only about Aztec itself, but also about post-Chacoan life and the American Southwest overall.

V. The Splinted Skeleton

The young woman laid out on the floor of Room 139 is one of 275 burials at Aztec; why does she warrant particular analysis? The room itself is well-recorded, adequately-described, a significant portion of the artifacts are extant and available for analysis at AMNH, there are several photographs, and published and non-published material resources are readily accessible. In some ways, the story of the “Splinted Skeleton” has been told — as an incident of an unusual burial in an important site.

However, when these data are combined with additional lines of evidence from photographs and other resource materials and then compared with surrounding burials and contexts, more information and understanding may be gleaned. We don't know if she was born or lived in Aztec, but the flattening of her occipital was typical of the region and time period of the artifacts with which she was found. She appeared to be a healthy 18-20 year old woman, not pregnant, who had had access to sufficient nutrients to allow her to grow to the average height (5' 5") of ancestral Pueblo people (Hrdlicka 1909). Her teeth were in excellent shape, with no caries or calcium build-up. When her injury happened, the young woman sustained approximately 400 lbs of pressure (per square inch) on the base or palm of her hand, and her radius and ulna splintered at a

45° degree angle (Sharat Kusuma⁸, personal communication 2016). At the same time a degree of force was absorbed by her upper left leg and mid-section. Her left leg dislocated, her lower lumbar and sacrum were cracked vertically and her left hip caved outward, dislocating her femur. Secondary internal injuries could have included bruising or rupture of her intestines, bladder or kidney. She survived the fall, or assault, or whatever force was exercised against her, and she lived for a period of time. Her broken arm was splinted by someone presumably skilled in medicine and with a basic working knowledge of bone structure and anatomy. Six wooden splints were used to set and stabilize the bones of her lower left arm. The appearance of periostitis (a staph infection) on the radius and ulna in conjunction with the treatment she received indicate that she remained alive and well cared for — for a time (Van Gerven and Sandberg, personal communication 2015).

When she died, she was placed on her left side with her legs flexed and with her right arm across her body and resting against her broken wrist. The room in which she was placed was over a century old when she died. It had been reroofed at least once, and left mostly unused, for a period of time, when at least two inches of dust accumulated on the floor. The room did not have a hearth, the walls were unblackened, and one may surmise the space was used for storage if at all.

This individual displays a mixture of typical and atypical burial practices. When she was placed on the clean floor of the room in the northwest quadrant of Aztec West,

⁸ Dr. Sharat Kusuma is a physician and orthopedist with an expertise in emergency medicine. He examined the photographs and suggested the mechanism of force necessary to cause the injuries to the skeletal remains and what corollary soft injuries might include.

she joined a small group of only 8% of people who received the same treatment. And when the items that are associated with her burial are examined, the plot thickens. Two bowls and a mug, all Mesa-Verde black-on-white style, were placed somewhere near her head; and between her legs, under her right femur and atop her left, immediately against her pelvis, was placed a cantaloupe-sized rock. The Splinted Skeleton has associated details that are both typical and rather unusual when compared to other burials found within Aztec.

Table 6.2: Comparison of Burial in Room 139 with other burials

Category	Splinted Skeleton	Other Aztec Burials	Analysis	Assessment
Sex	Female	20 Female/16 male	55.55% of sexed burials at Aztec are female.	---
Position	Flexed	133 of 275 individuals are flexed (6 extended, 115 indeterminate, 16 scattered, 2 sitting, 3 sprawled).	Of the 160 "known" burial positions at Aztec, 83.125% are flexed.	Typical
Side	Left Side	Of the 133 flexed burials, 44 are on the left side, 62 are on the right side (3 are face down, 17 are indeterminate, 7 are supine).	Of the 116 flexed burials where the position of the individual is known, 37.9% are on their left side (6 female, 5 male). 46.6% are on their right side.	Typical
Location	Room	Of 275 burials, 214 burials were found inside of rooms or kivas.	77.81% of burials at Aztec were found in rooms or kivas.	Typical
Vertical	Floor	214 burials were found inside of rooms or kivas.	Of the intramural burials, about	Not atypical, but less

		34 found on the floor, 25 sub-floor, 155 suprafloor in refuse or clean fill	15.88% are found placed on floors.	common
Whole vessels*	3 whole vessels (2 bowls, mug)	Of 275 burials, 190 had 0 whole vessels, 30 had 1 vessel, 28 had 2 vessels, 10 had 3 vessels, 5 had 4 vessels, 2 had 6 vessels, 1 had 7 vessels, 2 had 8 vessels, 5 had 39 vessels (single inhumation event), 2 had 51 vessels (single inhumation event)	248 burials or 90.181% had fewer associated vessels	Atypical
Injury	Left arm, left leg, pelvis, lower back	Room 182, Burial #88 had broken ribs. This is the only other recorded evidence of clear pre-mortem injury at Aztec	2 of 275 burials with injuries. 0.72%	Atypical, but possibly phenomenon of preservation and recording
Peri Mortem Treatment	Splinted arm	No comparison	No comparison at Aztec or elsewhere	Atypical
Post Mortem Treatment	Rock placed between legs	No comparison	No comparison at Aztec or elsewhere	Atypical
Other	Associated preciousity — ear of sweet corn	Possibly associated with the burial, but not certainly so. Only unusual domesticated found with burial	No comparison at Aztec or elsewhere	Atypical

*Whole vessels are only one proxy by which to determine the status of the associated burials, but for purposes of the amount of data available, it seems a reasonable means of determination.

The Splinted Skeleton had a number of characteristics and associations that were unique or rare at Aztec. Intra-room interments with sealed doorways and individuals placed immediately atop the floor occurred in at least four other instances at Aztec (and

possibly a 5th, though the burial in Room 110/111 was disturbed). Three of these interments occurred in the northwest quadrant of the site, only a few rooms distant from Room 139. One of them was the Burial of the Warrior, a 6' tall male buried, flexed and on his left side with a number of whole vessels and a massive woven shield. The Warrior is often cited as an example of a high status burial (Herrod and Akins 2012; Chapter 5), comparable to those individuals found in Room 33 at Pueblo Bonito.

Both of these individuals (the Splinted Skeleton and the Warrior) shared similar disposition and interment styles, a much higher proportion of whole vessels and possibly other associated grave goods, and were given private to semi-private interment spaces of their own (An infant was also buried near the Splinted Skeleton — Burial 28). Injuries were not common amongst the Aztec population; the only other clear indication is a woman with broken ribs (on the left side) in Room 185 — also in the West Wing of Aztec West. Left side injuries (injured arms, legs or ribs) for women are more common in Chaco Canyon, where Akins (1986) notes at least three women with injured left legs — the leg of one of whom had been amputated at the hip and buried with her. Patterns of violence against women (Martin 1997) in the Pueblo past are well documented; but these are usually manifest as parry and head injuries. The injuries at Aztec (and Chaco) are perhaps telling, but not necessarily evidence of purposeful injury.

The post-mortem treatment of some other women at the site may be more telling. The Splinted Skeleton had a large rock placed between her legs at the time of death. There is no corollary for this behavior in the archaeological, ethnographic or historic record. That the woman was young, of child-bearing years and atypically injured

and buried raises the question as to whether the placement of this rock was a purposeful meaningful event. The post-mortem treatment of other nearby women at Aztec may also be informative. Also found in the West Wing was a woman left sprawled in a room, who Boundey and Morris noted may have died violently (Aztec_Notebook_16). In Room 180 a middle-aged woman had a wooden stake rammed through her pelvis (presumably post-mortem). Is this a sufficient pattern to warrant a statement on the treatment of some women in 13th century Aztec? One artifact possibly associated with Splinted Skeleton seems more benign: an ear of rare corn. If it was, it may answer questions about the nature of her status.



Plaited Sandal, Accession AMNH29.0, Catalog # . Morris FS . Analyzed by Laurie Webster, 2006. Coarse 1-1 oblique plaited yucca-leaf sandal. Images: AMNH 29.0/9460A: coarse 1-1 plaited sandal, upper face.



Vegetal Artifacts, Accession AMNH29.0, Catalog #9515, 9516 and 9517. Morris FS 2998, 2999, 3000 (respectively). Analyzed by Laurie Webster, 2006. Worked vegetal artifacts, possibly depicting flowers. Possible charms. Image: AMNH 29.0/9515, 9516, 9517A: worked vegetal artifacts, possibly depicting flowers.



Wood Ring, Accession AMNH29.0, Catalog #9501. Morris FS 2985. Analyzed by Laurie Webster, 2006. Small wooden ring with interior looped yucca leaf network. Images: AMNH 29.0/9501A: small wooden ring with looped yucca network. AMNH 29.0/9501B: ring with network of looping.



Cotton Cloth, Accession AMNH29.0, Catalog #9447. Morris FS 2931. Analyzed by Laurie Webster, 2006. Fragment of 1/1 plain-weave cotton cloth. Images: AMNH 29.0/9447A: plain-weave cotton cloth. AMNH 29.0/9447B: reverse face showing slightly knotted corner.

Fig 6.5: Perishable found in Room 139.

Fig 6.6: Perishable found in Room 139.



Plaited Sandal, Accession AZRU-00002, Catalog #115. Other No: FS 2945. Analyzed by Laurie Webster, 2006. Plaited sandal, coarse weave, med size, double toe loop, jogged toe, heel strap. Measurements: L 23.0, W 10.5 CM. Images: AZRU2-115A: plaited sandal, upper face 1. AZRU2-115B: plaited sandal, upper face 2. AZRU2-115C: underside. AZRU2-115D: detail of toe end. Recovered from Room 139, Aztec West Ruin. Artifact donated by Rosa Abrams.



Cotton Fabric, Accession AMNH29.0, Catalog #9453. Morris FS 2937. Analyzed by Laurie Webster, 2006. Deteriorated remains of cotton 2/1 striped red, brown, and white twill weave fabric. Images: AMNH 29.0/9453A: deteriorated remains of 2-1 striped twill fabric. AMNH 29.0/9453B: reverse face with 1-span floats. AMNH 29.0/9453C: close-up of face with 2-span floats. AMNH 29.0/9453D: close-up of face with 1-span floats. AMNH 29.0/9453E: close-up of red, brown, and white wefts exposed at edge of fabric. AMNH 29.0/9453F: close-up of red, brown, and white wefts exposed at edge of fabric 2. AMNH 29.0/9453



Yucca Coil, Accession AMNH29.0, Catalog #9490. Morris FS 2974. Analyzed by Laurie Webster, 2006. Coiled and wrapped yucca strips. Image: AMNH 29.0/9490A: small coil of yucca leaves.



Feather Object, Accession AMNH29.0, Catalog #9563. Morris FS 3047. Analyzed by Laurie Webster, 2006. Wand like object of stitched feathers. Images: AMNH 29.0/9563A: wand like object of stitched feathers. AMNH 29.0/9563B: other face of feather object. AMNH 29.0/9563C: another view of stitching elements of probable quill strips used to join feather quills. Note square knot. AMNH 29.0/9563D: side view showing stitching element emerging from side of feather 1. AMNH 29.0/9563E: side view showing stitching element emerging from side of feather 2. AMNH 29.0/9563F: side view showing stitching elements and remaining feathers. AMNH 29.0/9563G: side view showing stitching elements of probable quill strips used to join feather quills. Note square knot.



Shoe-Sock, Accession AMNH29.0, Catalog #9457. Morris FS 2941. Analyzed by Laurie Webster, 2006. Looped and plied yucca fiber and turkey-feather shoe-sock, simple looping, 2S-Z. Images: AMNH 29.0/9457A: looped turkey-feather shoe-sock, heel at lower right. AMNH 29.0/9457B: looped turkey-feather shoe-sock, other face. AMNH 29.0/9457C: close-up of looping structure 1. AMNH 29.0/9457D: close-up of looping structure 2. AMNH 29.0/9457E: close-up of looping structure 3. AMNH 29.0-9457F: close-up of toe end showing transition from highly processed to coarse yucca elements 1. AMNH 29.0/9457G: close-up of toe end showing transition from highly processed to coarse yucca elements 2. Recovered from Earl Morris' excavation of Room 139, Aztec West Ruin.

VI. Sweet Corn

Only three instances of ancient sweet corn from the U.S. Southwest have been published. This dearth of data undermines the authority with which archaeologists can discuss its presence, origin and significance. In a survey of the literature, “the origin of sweet corn” is invariably paired with adjectives such as “contentious,” “irregular,” “enigmatic” and “problematic.” Indeed, the idea of the presence of *Zea mays* (L) that possesses the *su1* allele mutation⁹ has been anathema in Southwestern U.S. archaeology for well over a century. Consequently, sweet corn exists in a state of limbo — neither openly acknowledged nor entirely dismissed — even with a somewhat clear archaeological presence in Puebloan prehistory as recent research acknowledges (da Fonseca et al. 2015).

Perhaps one of the most unusual finds in all of Aztec Ruin is an ear of sweet corn found amongst the perishable refuse on the floor of Room 139. Sweet corn has never been considered a Prehispanic Southwestern domesticate, and its prehistoric impacts in North America are rarely considered. Below, I review the arguments that surround *when* and from *where* sweet corn may first have appeared in the Americas and will address questions of domestication, mutation and the complicated cultivation processes

⁹ *Zea mays* v. *saccharata* is the traditional scientific name for the 'race' of sweet corn first identified by biologists and agronomists in the 19th and 20th centuries. In the last few years (five or so), this name has fallen out of favor as genetics have dispelled long-held disconnects between phenotypes and genotypes among the hundreds of subspecies of corn. This is an ongoing process, and I have not found in the current literature a satisfactory substitute name for prehistoric sweet corn — since it has not been genetically sequenced and renamed in the new system. Consequently, for the sake of clarity, I will use *Zea mays* v. *saccharata* to discuss the type of corn found at Aztec Ruin, Morris and Erwin's description, and the literature up to the end of the 20th century that attempted to classify this type of corn.

required for it to prosper. I focus on the archaeological data, including the specimen from Room 139 (**Fig 6.7**). I then assess the implications of this find and provide an alternative and new opinion regarding its significance. This discovery demonstrates that sweet corn clearly had prehistoric antecedents in North America, that the earliest recorded example of this variety was in the Puebloan Southwest, and that it is highly likely it was purposefully domesticated and grown throughout the region as opposed to being a freak mutation (cf. Erwin 1951).

Four problems concerning sweet corn are addressed in the following sections:

1. Nomenclature
2. Historic and ethnographic data, and possible bias
3. New genetic data that throw sweet corn's origin into question (including questions concerning hybridization, mutation or diffusion from Central or South America)
4. The limited archaeological data

Finally, this chapter will evaluate the implications of sweet corn's presence at Aztec, particularly as associated with an unusual, probably elite burial associated with a mug, in an area of rooms notable for large numbers of burials. Previous discussions of



Fig 6.7: Cob of sweet corn found in the refuse of Room 139.

field corn's appearance in the Southwest tend to suggest that it was a Mesoamerican import. This chapter will explore Aztec's ear of sweet corn within the hypothesized trajectory of sweet corn's spread throughout ancient North America (**Fig 6.8 and 6.9**) The combination of archaeological, ethnographic, historic and genetic data may allow us now at last to fill gaps in our understanding, for it is possible that this sample of sweet corn from Aztec provides a “missing link” between archaeological data from

Mesoamerica, genetic data from South America and historic data from northeast North America.

There are two chief theories on the origin of sweet corn, with implications for our understanding of the Ancestral Pueblo past. The first argues that sweet corn is a species domesticated and cultivated by Native Americans for a period of unknown antiquity prior to the arrival of Columbus (da Fonseca et al. 2015:1). The second theory posits that sweet corn came into existence as a mutated version of field corn and has very recent origins — probably in the early late 18th or early 19th century (Huelson 1954:388; Erwin 1951:303; Carter 1948:206). This debate, seen in a series of articles written by agronomists and geneticists in the 1940s and 1950s, relies partially upon the archaeological record and more specifically on the single ear of corn found in 1919 at Aztec Ruin and dating c. 1100-1250 that is the focus of this chapter. This ear, as described, was excavated in an intact room, was identified as sweet corn by the initial excavators, and was subsequently sent to agronomist A.T. Erwin, by whom it was examined and written up as a clear, but anomalous, incidence of sweet corn in prehistory (Erwin 1934:589). Later he dismissed his initial interpretation in favor of a mutation theory, arguing that sweet corn is a mutant of typical field corn (which includes flint or flour varieties). In essence, the argument goes, sweet corn was field corn harvested before complete maturation was achieved, thus precluding the kernels' ability to form normal starch (Erwin 1951:302). Since the 1950s, this single piece of corn has been used as evidence to support each theory: (1) arguing that its mere presence

indicates prehistoric antecedents for modern sweet corn, and (2) claiming that its rarity indicates a genetic mutation that can explain away its presence.

Ethnographic Data on Sweet Corn in the Pueblo Southwest

While the historical record is thick with references to sweet corn (See **Appendix 9**), the ethnographic record is decidedly sparse: a gap which many historians note is unfortunate (e.g., Whiting 1966:317-318). Cushing is credited with the first reference to sweet corn amongst the Zuni:

The oldest sister was yellow corn; the second, blue; the third, red; the fourth, white; the fifth, speckled; the sixth, black; the seventh, sweet corn. The six colors were in the Zuni collection sent me by Mr. Cushing, but there was not a sweet corn among them (Sturtevant 1894:333-334).

Most other ethnographic accounts that relate to sweet corn, primarily from early 20th century explorers and anthropologists, attribute to it an ambiguous prehistoric origin, without clear archaeological record, or describe it as a cultigen introduced by white men to supplement the bland dent and flour corn predominantly found amongst groups in the U.S. Southwest. Other ethnographic accounts mention sweet corn in ethnographic contexts — mostly among explorers' and early anthropologists' encounters with various Native American groups (See **Table 6.3** below for list of early ethnographic accounts).

Castetter and Bell (1942) reports that while ethnographic data on the phenomenon are rare, sweet corn has been found at the Zuni, Acoma, Laguna and San Felipe Pueblos. Informants among each of these four Indian groups maintained that the cultivation of sweet corn was ancient.

Overall it would seem that sweet corn, commonly regarded as resulting from a mutation to the sugary endosperm via a flint corn, was not widely cultivated, if at all, in the Southwest aboriginally (Castetter and Bell 1942:87). As supplement to this overview of the historical discussion, however, Carter believed that ethnographic data should be assessed as solid data. He surmised, “If it's used by non-whites during or immediately before colonizing periods, [sweet corn] likely has prehistoric origins” (Carter 1948:214). The ethnographic data are difficult to collect, but **Table 6.3** assembles the information I could find.

Table 6.3: Ethnographic References

Date	Directly Referenced	Significance	Source
Data Collected c. 1881/1882	“Behold, indeed! Where the plumes had been planted and the <i>tchu'-e-ton</i> placed grew seven-corn plants, their tassels waiving in the wind, their stalks laden with ripened grain. 'These' said the strangers 'are the severe flesh of seven maidens, our own sisters and children. The eldest sister's is the yellow corn; the next, the blue; the next, the red; the next, the white, the next, the speckled, the next the black, and the last and youngest in the sweet corn, for see! Even ripe, she is soft like the young of the others. The first is of the Northland, yellow like the light of winter; the second is of the West, blue like the great world of waters; the third is of the South, red like the Land of Everlasting Summer; the fourth is of the East, white like the land whence the sun brings the daylight;	Sweet corn indicated, but <i>origin</i> conspicuously absent	Cushing 1920:36-37

	the fifth is of the upper regions, many-colored as are the clouds of morning and evening, and the sixth is of the lower regions, black as are the caves whence came we your elder, and ye, our younger brothers."		
Data Collected 1910	Papago Indians' sweet corn collected in field and regrown by agronomists who found extraordinary variation amongst the endosperm types, but which were easily selected to produce better yields the following year	General positive yields after regrowth with exception of one year when corn was not properly pollinated	Freeman 1915:454-455
1926	"sweet corn"	Zuni informant	Curtis 1926:118
1929	Sweet corn roasting in pits in order to store them for winter		Forde 1929:393
Data Collected 1933/34	Preparation of "sweet corn meal"		Titiev 1927:248
Data Collected Fall 1935	Sweet corn grown in evenly-spaced patterns at side of chili plants	Most comprehensive list of Hopi cultigens to date	Whiting 1937
1937	Small patches of sweet corn grown near spring fed garden on benches near Hopi Mesas		Beaglehole 1937:
1942	"All our Papago and Pima informants, save one, agreed that sweet corn was not one of the ancient Papago sorts, but that it had been introduced comparatively recently from Mexico. Several of the Papago informants had seen it grown in the Altar Valley when on expeditions to Sonora years ago. The single exception was a Papago informant, Chico Bailey, a very reliable old man at Pisinemo village, who said sweet corn was very old among the Papago — just as old as	Pima and Papago informant	Castetter and Bell 1942:85-86

	any Papago variety...and said his father told him the Papago had always grown it."		
1942	"Ethnological data on the occurrence of sweet corn in the Southwest are rare. It has been reported only for the Hopi (Whiting). In our field studies it has been found at the Zuni, Acoma, Laguna and San Felipe Pueblos. Although informants among each of these four Indian groups maintained that the cultivation of sweet corn was ancient, more objective evidence is needed to establish its antiquity among these pueblos. Thus it would seem that sweet corn, commonly regarded as resulting from a mutation to the sugary endosperm from a flint corn was not widely, if at all, cultivated in the Southwest aboriginally."	Zuni, Acoma, Laguna and San Felipe informants	Castetter 1942:87.

Archaeological Data on Sweet Corn in the Southwest

In general, archaeologists have avoided the question of sweet corn identification (I could find no indication of any archaeological discussion of the question in the U.S. after the 1950s). This avoidance may derive from the complications listed above, as well as the failure among specialists to resolve issues related to basic nomenclature and the mutation issue. Additionally, it may arise from a general antipathy of biologists towards archaeological interpretations:

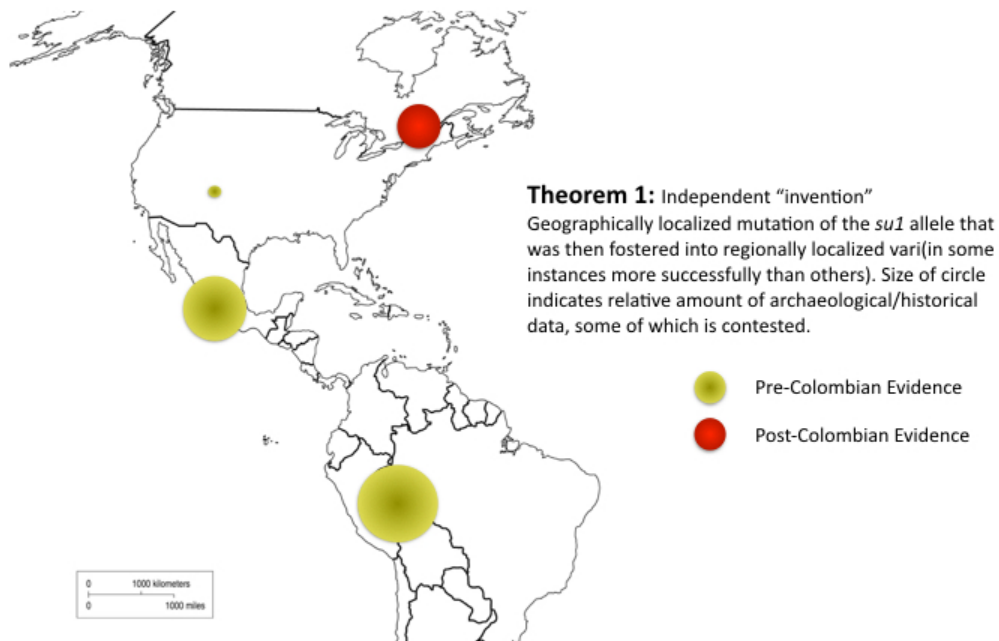
Both the original analysis of the problem [of sweet corn] and the subsequent reinterpretations are difficult for the non-specialist to follow. It is not surprising therefore that men like [these anthropologists] Spinden, Wissler, Kroeber, Lowie, Thompson, and Cole to mention only a few, failed to understand the botanists'

conclusions. Kidder, though recognizing that the botanical evidence was not clear, continues to assume that the problem is subject only to botanical solution (Whiting 1944:501).

This does not constitute an argument, but it does seem to resonate in the modern literature, in which few (if any) archaeologists address the issue of sweet corn directly. This may also represent a failure of analysis, in that sweet corn is not on the radar of Southwest archaeologists, and thus corn — no matter its state of preservation — tends to be relegated to the field corn variety. This suggestion is of course not demonstrable, but it is to be hoped that a broader recognition of the potential significance of sweet corn may result in increased study of archaeological corn samples in the future.

There are three published occurrences of archaeological sweet corn in the U.S. Southwest. These are 1) Aztec Ruins (Morris 1919), 2) Pima and Papago excavations (Castetter and Bell 1942) and 3) Jemez Cave (Alexander and Reiter 1935) (see **Table 6.4** below). Of these three examples, the samples found at Jemez Cave and Pima and Papago consisted of a few kernels of corn that were identified in the field as sweet, published as such, and then subsequently lost. The sample at Aztec is unique because it represents a complete sample with relatively good context (including photographs), which was examined and published by a trained biologist. Its original description was indeterminate: “The question has been raised as to the possibility of this being an

immature specimen of field corn.



Aztec Sweet Corn as “Missing Link?”

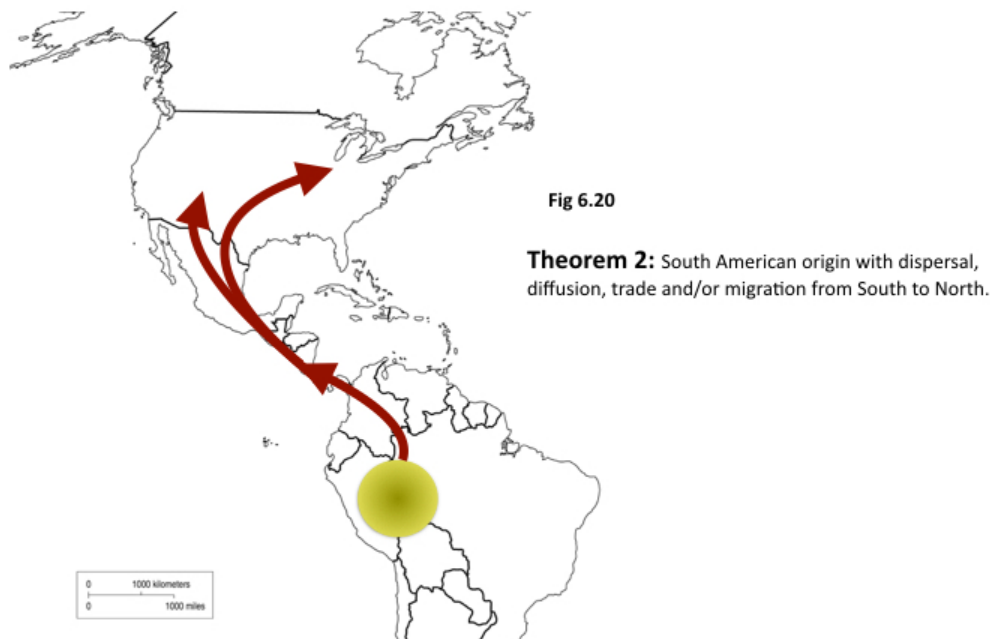


Fig 6.8: Possible Sweet Corn Origins

The condition of the kernels in the upper half of the ear give evidence that the ear was plucked while still immature. The kernels towards the base of the ear are fully developed and show the wrinkled pericarp and translucent endosperm typical of sweet corn” (Erwin 1934:589).

Erwin's thorough description was corroborated by an independent assessment of sweet corn by Karen Adams, ethnobotanist. Flint, pop, and dent varieties of corn would also have varying amounts of white flour endosperm, plus hard corneous endosperm in varying amounts and locations. Sweet corn is the only one that would have completely glossy and wrinkled kernels (Adams, personal communication 2014).

Sweet corn discovered in archaeological contexts presents knotty questions, exacerbated by the difficulty of identification in the field. In the case of the sample from Aztec, Morris's workmen were largely local farmers, and their direct experience with the crop doubtless facilitated immediate identification of the sample as sweet corn. Other archaeologists past and present may not be so discerning. The most diagnostic element — the mutation that stops the normal conversion of sugar into starch in the endosperm — results in a kernel that is full of the polysaccharide “phytoglycogen.” Consequently, when sweet corn kernels dry out they appear wrinkled and glassy (Brown et al. 1985:4) (**Fig 6.9**) while the far more common field corn appears dented. Neither the cobs nor ears or tassels can be differentiated without genetic testing. Thus, it is not out of the realm of possibility that sweet corn has been collected in other contexts in the Southwest, but simply not identified as such. (For instance, a kernel at the Arizona State Museum that was initially catalogued and identified as sweet corn was re-classified at a

later date as simply “corn.” The curator or collections official was not aware of the difference between the physical appearances of the two) (Mike Jacobs, ASM collections curator, personal communication, 2015).

The context of the sweet corn from Aztec in Room 139 could be problematic. A number of sealed rooms from Aztec were breached by early settlers, and pack rat middens were abundant throughout many of the sealed rooms. Unsurprisingly, for many years there was a suggestion that the sweet corn might have been a 19th or 20th century intrusion into the room. However, based upon Morris's descriptions and research into pack rat behaviors, it seems clear that Room 139 was a sealed, pristine archaeological context when Morris breached the north doorway in the summer of 1919. His description (see **Appendix 2**) showed no indication that previous explorers or pothunters had entered the room (which he was wont to describe — particularly in this part of the site which had been heavily hit by looters). The pristine state of the room was also corroborated by the presence of an intact skeleton and numerous whole vessels — prime targets of pothunters. The refuse found in the northwest corner, which was rife with thousands of perishable items (**Appendix 2**), also included the entire ear of corn. Though rat nests and skeletons were abundant, it is unlikely that rats or pack rats (which average between a scant 350 and 600 g) would have collected an entire ear of corn — even one which was desiccated would have weighed anywhere from 300-450 g. Fears of an intrusive were allayed thanks to funding that allowed for and AMS data performed by Beta Analytic in the Spring of 2015 (**Fig 6.10**): the corn clearly dates to

1220-1280, the period to which Morris originally attributed it, corroborated by the style of vessels on the floor of the room.

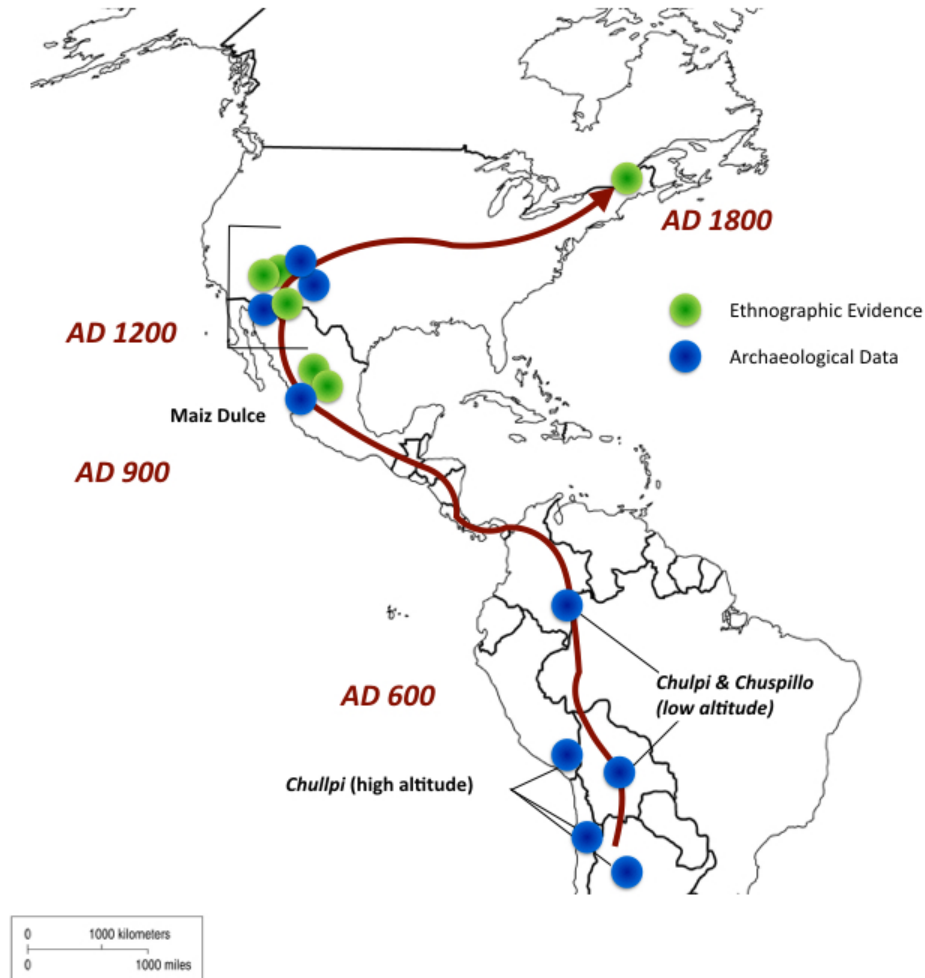


Fig 6.8: Ethnographic and Archaeological Data of Sweet corn and its southern relatives. Data compiled by the author.



Fig 6.9: Detail of sweet corn kernel. Courtesy Karen Adams. (Used with permission???)

Figure 6.10: Radio Carbon Data for Sweet Corn

Sample Data	Measured Radiocarbon Date	D13C	Conventional Radiocarbon Age
Beta Analytic: 407938	510 +/- 30 BP	- 8.9 0/00	770 +/- 30 BP
Sample 29.0/9397A			
2 Sigma Calibration	Cal AD 1220-1280	Cal BP 730-670	

This ear of sweet corn thus represents one of only three of the archaeological examples of sweet corn in the U.S. “Archaeological specimens of sweet corn in the Southwest, in fact in the Americas, are extremely rare” (Castetter and Bell 1942:86). Below is a complete list of all archaeological sweet corn found in the United States.

Table 6.4: Sweet Corn Recovered through Archaeological Investigation

Date	Location	Date Found	Sample Size	Sample Extant?	Source
US Southwest					
1220-1280 (AMS date)	Aztec Ruin, NM	1919	Whole ear	Yes. American Museum of Natural History	Irwin 1934
Unknown	Gourd Cave, Nitsie Canyon, Arizona (ascribed as Pima and Papago)	1916 (Byron Cummings)	"A few purple grains"	Yes. Arizona State Museum (specimen #1935), but could not be relocated by collections manager (Oct, 2015).	Castetter and Bell 1942:86
Probably 1250-1300 (pottery date)	Jemez Cave, New Mexico	1934-1935 (field school excavations)	Single grain	Maybe? Catalog does not match current collection information	Alexander and Reiter 1935:62

The significance of these finds cannot be overstated, both as physical proof of the presence of sweet corn in clear prehistoric contexts, and also as possible samples for future genetic testing. This has, interestingly enough, not yet been done on any archaeological sweet corn in the Western Hemisphere, but the potential importance of such testing has long been recognized. "It is obvious that the value of geographic races as evidence for or against cultural contact will depend on how confidently archaeological materials can be assigned to a particular race. If the races are distinguished by characters that are not preserved in archaeological specimens, then the

fact that geographical differentiation has occurred within the crop adds nothing to the information which can be obtained from the archaeological record” (Pickersgill 1972:99).

VII. Implications

Not much has changed with respect to *new* data on sweet corn in the United States in the last 70 years. No new archaeological sweet corn has been identified. No new ethnographic or historic accounts have been uncovered. With the exception of three examples (**Table 6.4**), archaeologists must rely upon dispersal and functional analogs from Central and South America, genetics and genetic regression models that hypothesize the rates of mutation to postulate sweet corn's arrival, and creative puzzle-piece construction. But new narratives are possible, as reanalysis of the corn from Aztec suggests.

As noted above, archaeological sweet corn *was* present in the U.S. Southwest. It is still not wholly clear if it was intentionally cultivated or appeared as a random mutant. However, if we place the sweet corn from Aztec within a broader context, a new and plausible narrative for its arrival, function and status can be constructed.

A number of varieties of field, dent and flint corn arrived in the Southwest from Mexico no later than 2100 BC (Huckell 2006:105; da Fonseca et al. 2015:2). These non-sweet corn varieties made their way north through trade, migration and patterns of adoption, and alongside other types of material culture. The two chief models for the mechanisms by which this diffusion took place are 1) that maize and the knowledge of

how to cultivate it moved north, transmitted from group to group without major population movement; or 2) that Mesoamerican farmers moved into the area and brought particular cultigens with them (Merrill et al 2009).

However it got there, the selective pressures on maize were intense, as it often had to be modified to adapt to high altitude, low humidity and/or minimal-water environments. “Farmers continued to maintain strong selective pressure on the obliging cultigen to achieve desired results, with increased productivity topping the list” (Huckell 2006:105). Maize species that abounded in the Southwest were then gradually adopted by groups in the Northeast (Galinat and Campbell 1967). Genetic studies that follow haplotype groups tend to confirm this general trend (though it is not quite so simple as expressed here; see Doebley et al. 1988:120).

Did sweet corn follow a similar trajectory as its field corn brethren? This question has not been asked by archaeologists, presumably due to the fact that only one significant sample is available for analysis. Though archaeological data are sparse, geneticists have created a number of predictive models that postulate when sweet corn may have developed locally from local maize — it was not universally adopted and cultivated like field corn. Most groups in Mesoamerica either declined to grow the sub-species in bulk, found it difficult to cultivate or may have determined it unpalatable or economically unproductive. Whatever their reasons, *maize dulce* did not make up a significant portion of Mesoamerican cultigens (Staller 2006).

While today sweet corn is a staple for Southwestern Pueblo groups and Anglo-Americans alike, a millennium ago it was neither a common nor staple crop in the

Western Hemisphere. Neither was it common in South American iterations. *Chullpi*, *Chulpi* and *Chuspillo* were relatively uncommon and difficult to select for and cultivate at the varied elevations and with the variable water supplies of the Andes. *Maize Dulce* from Mexico was even less popular and rarely found in the archaeological record. This may have been because Mesoamerican groups preferred to target field corn stalks as their source of sugar, which could be made into the popular beer, chicha (Smalley and Blake 2003:675). Ethnographic accounts (see **Appendix 9**) from Hopi indicate that sweet corn may not have been popular in recent history either; it seems to have acted as a substitute food for infants whose mothers had died, rather than as a daily consumable (Cushing 1920:575).

Sweet corn is far from being an easy or hearty cultigen. Erwin described it frankly as “a weakling and more susceptible to inroads from pathogens such as Stewart’s wilt, corn smut, and ear fungi than field corn” (Erwin 1951:303). Other drawbacks include the need to plant it early in the season, as the modified endosperm slows growth of the seedling, its tendency to rot from the roots, and its susceptibility to insects (corn ear worm and stalk borer). Sweet corn is also difficult to maintain as a pure strain when field corn is nearby, and must often be grown in isolation at considerable expense because its pollen tends to be overwhelmed by field corn pollen. To cultivate sweet corn, then, farmers must have been selective and purposeful so that the corn would not cross-pollinate with regular field corn. In addition, there is a narrow harvest window: if the ears are collected too late, then the kernels are starchy, tough and unpalatable (Boutard

2013:46-47). Consequently, the cultivation of sweet corn is specialized, difficult and highly risky.

Besides the difficulty in cultivation, sweet corn is also less efficient as a consumable. There are, almost universally, fewer calories, minerals and vitamins in sweet corn than in its field corn counterparts (**Appendix 9**). It is by its very nature junk food, with high sugar, high calorie, low vitamin and low nutrient content. It seems, however, that Southwestern groups — including those at Aztec — were not unfamiliar with the possibilities of sweetness to be garnered from corn. Though there is as yet no evidence for beer production at Aztec (though there is recent data that indicates corn beer was at Paquime AD 1200-1450 (de Pastino 2016), the stalks of maize plants were targeted for the production of quids, and it is possible their stalks were purposely cultivated as a source of sugar/sweetness (Smalley and Blake 2003). Across much of the archaic New World “maize quids (the mass of plant fiber that was chewed and expectorated after sucking out the sweet juice) are found among the many other types of plant quids... These remains demonstrate that the ancient peoples...occasionally snacked on the sweet juicy stalks and tender husks of the maize plants” (Smalley and Blake 2003:682). This would seem to indicate knowledge of the sweet nature of the corn plant in general, and its possible selection for alternative and specific uses. The reason for the prolonged preference for field corn throughout the Southwest remain unclear, however. It may have been related to taste preferences, aesthetics, ease of cultivation or limited storage options. At the same time, it could have been the very difficulty, taste and poor storage qualities of sweet corn that made it a high-value commodity, one that

would only have been accessible to the elite. In this way it would have mirrored its cacao and theobromine counterparts.

If sweet corn was present in the Southwest in greater quantities, it would have implications for the degree of trade and contact within North America, the physical transferal of corn or corn seed and our recognition of shared knowledge on how to grow and sustain specialized crops. Beyond this, it is very likely that it would have seen specialized consumptive use and specialized disposal.

Long distance esoteric items and access to specialized goods have long been a barometer to assess elite control of preciosities (Helms 1988). In this case, preciosities are defined as prestige goods that are a differential diagnostic of ranking in mortuary contexts. Room 139 (a mortuary context) and its surrounds were full of unusual items, some of which had to travel great distances to come to Aztec. The room immediately to the east (Room 128) contained the remains of a macaw. A copper bell was found several rooms to the north (Room 64). Four hundred olivella shells and walnuts, neither to be found locally, were excavated in a contemporary burial (late 13th century) associated with Room 41. "Because they were of foreign origin, they may have been valued only as ornaments, but it is more likely that their strangeness caused the mind of the Indian to endow them with mystic powers which made them precious as charms or amulets" (Morris 1919:98).

Room 139 at Aztec is thus a room of firsts and of significant discoveries. The Splinted Skeleton demonstrates a perplexing array of anomalous peri- and post-mortem treatment. And the ear of sweet corn shows the probable introduction of this corn

varietal in the Southwest already at the beginning of the second millennium AD. Their possible discovery in close association with one another is significant; but they are each individually important to understanding Aztec Ruin.

The sweet corn of Room 139 provides small steps toward understanding Chaco and the post-Chacoan world at Aztec as a whole. It suggests that general status and diet were related, with high-status individuals and households perhaps having access to better quality, more varied, and more prestigious foods (Earle 2006). Nelson (2006:341) explicitly rejects the idea of domination by intruders at Aztec but argues that Chacoan elites used Mesoamerican objects to legitimize their power and status. This may be seen with the relatively high-status burial of an individual together with specialized corn that may have originated in Mesoamerica. To date, there is not clear evidence that sweet corn was consumed in higher quantities by high status individuals in Mesoamerica, but the question remains open. What is clear is that sweet corn appeared in the Southwest already by the 13th century. It is tricky to grow. And it was found at Aztec near, and perhaps in association with, a series of high-status burials, the most immediate of which was unique. If Morris was right in ascribing mystic powers to walnuts, perhaps the same may be said of sweet corn as well.

Chapter 7: Summary and Conclusions

This dissertation presents three case studies and a test-case in new methods for analysis of archaeological legacy data: the photos, notes and maps from 1920s excavations at 12th-13th century Aztec Ruins. The archival documents were mostly the work of Earl H. Morris, Aztec's principal investigator, but also included documents generated by other archaeologists and non-archaeologists, interviews, on-site non-destructive data acquisition, and more recent conventional research (excavation and artifact analysis) by others. Combining and analyzing these disparate data resources, the case studies focused on two specific structures (Kiva D and Room 139), and a site-wide analysis of mortuary data.

The data, ordering of data, structuring of the questions, methods of analysis and output of narrative histories based upon multimodal analysis presented here are generally non-traditional or unconventional approaches in archaeology. I argue, however, that these methods are warranted and worthwhile based upon results obtained through this approach. My research is a test of both the methods applied to these data and their potential for new understandings of Aztec West.

This is a bottom-up, micro-to-macro, and historical assessment of the available data. After compilation and ordering of the data, the next step was to make logical assessments of their significance based upon multimodal analytic coding. The degree of integration and saturation is often only limited only by the patience of the investigator and sophistication of the software available to manage these big data issues. The Aztec data hold great promise for future research, and the methods explored here provide a

clear means to dealing with a problem outlined by several prominent Southwestern Archaeologists — the problem of data.

Lekson (2006:22) has recently commented, “Southwestern archaeology is choking on its own overabundant data.” Plog (2015:11) agrees: “The persistence of key questions regarding Chaco is certainly not a result of a lack of data.” In Plog's opinion, data integration is the chief means by which new understandings of the Chaco Phenomenon might be developed. Aztec also falls into this category: the case studies presented here demonstrate the breadth and depth of potentially analyzable data available in the archival materials related to Earl Morris's excavation there nearly a century ago. My approach to these abundant and highly variable data drew on methods of multimodal analysis (Chapter 2). Was this approach successful? Two positive outcomes from the case studies are evident. 1) They demonstrate how inclusion and assessment of all modes and media of available data in archives lead to new understanding; and 2) they provide a means of ordering and interpreting the archival data in such a way that they can be approached and accessed by other researchers who have entirely different questions.

The case studies addressed in this dissertation demonstrate that new data may be gleaned from reassessing the archival records concerning artifacts, architecture and spatial associations. The data have allowed a new consideration in Chapter 4 of Kiva D, a small kiva with a big episode at the end of its use period that sheds light on its final hours and the manner in which it was used at that time. They have enabled a compilation of enormous amounts of data on burials, of which Chapter 5 here presents

only a few preliminary interpretations. Even those few investigations into mortuary data allow for a revised understanding of Aztec's function after 1140 and the use of the great house. Chapter 6 offers another case study, one that demonstrates the significance of the multimodal approach adopted here in interpreting the newly recovered data available for Aztec. The guiding initiatives drawn from Sebastian's work outlined in Chapter 1 (new data; kivas; the role and function of Aztec) have resulted in considerable new insights thanks to the combined power of multimodal analyses and microhistorical approaches.

Kiva D

Kiva D was in many the ways the test case for this method. It was one of the first kivas excavated by Morris, it had an associated map, nine photographs and short written description (though most unpublished), and some of the human remains and floor assemblage and most of the artifacts are still available (at AMNH) for analysis. The strength of the legacy data and the contradictory statements on this structure in the published record made Kiva D an obvious initial target for study. Moreover, the data addressed the range of existing interpretations of the kiva and indeed the entire east wing by Morris.

As presented in Chapter 4, my analysis indicated: 1) a relatively early construction for the kiva; 2) that both Mesa Verdean (columnar pilasters, floor plastering) and Chacoan (subfloor ventilation system, eight pilasters) architectural traits were present; 3) that five sets of human remains and an array of 50+ artifacts were

scattered about the floor; 4) that the structure burned catastrophically and was never reoccupied; and 5) that Kiva D was used for nearly two centuries. By and large during the 13th century across the region, human remains are seldom found in kivas, and they are nearly unheard of in great house kivas. When found, they are often associated with violence or atypical (“inconsiderate”) burial practice. The evidence suggests violence is the most likely scenario to explain the remains encountered in Kiva D. The structure thus suggests a violent end to Aztec West, with atypical burials, purposeful burning, and a rich but disorderly floor assemblage. It augments our understanding of this end gained also from the destruction of most of the east wing by arson in the late 1200s.

Burials

Burials at Aztec extended the methodological experiment of multimodal analysis beyond the analysis of a single area, room or kiva. Of the 186 burials that Morris originally recorded, only 26 had published photos associated with them. For this research, 60 additional photographs of unidentified human remains were analyzed, and the work of eight additional archaeologists added nearly 100 additional individuals to the total number found at Aztec. The addition and documentation of so many additional sets of remains to the known assemblage and the identification of both high status and inconsiderate burials is perhaps one of the richer veins of data from the site. The results indicate a relatively high proportion of high-status burials in Aztec, during both the Chaco and Post-Chaco periods, and analysis demonstrates that burial in general was more widely dispersed at the site than has been observed at Pueblo Bonito. Aztec, like

Pueblo Bonito, has several clustered room-groupings with high quantities of individual burials. The data are not robust enough to indicate whether these tomb-rooms were used for single-mass inhumations or were crypts that used repeatedly over time. With the exception of Room 41 in the East Wing of Aztec, these multi-burial rooms were not photographed by Morris, and detailed notes like those used in the reconstructions at Bonito are not available. AMS dates for skeletal remains may be able to answer this question in the future. It is important to note that the kinds of burial crypts described at Pueblo Bonito do not occur at Aztec, though the two adults buried in Room 110/111 bear further analysis to see if there are similarities beyond location within the great house, quantities of associated artifacts, and if some of the wood found in the room may have indeed been planking like that found in Room 33. Finally, Morris's suggestion that the Post-Chacoan occupants of Aztec were more closely affiliated with northern San Juan or Mesa Verde culture than with Chacoan culture is substantiated in the updated burial data.

Room 139

Room 139 had been recorded through three photographs (but without a map), and a single burial from the room had been extensively analyzed/described by Morris. Additionally, there were associated tree dates, modern analysis of perishable objects, and recent re-analysis of the skeletal remains. Room 139 was built in an early phase of construction with less-than-ideal materials: juniper was used rather than pine or fir for the viga (though the room may have been remodeled). The room was likely never used

for habitation (no hearth, no indications of smoke, limited ventilation). It may have been used for storage, as a passageway, and/or simply to elevate the rooms above. Its final use is fascinating, however, as it housed a 13th century burial of the “Splinted Skeleton” with an array of injuries, four associated vessels and a perplexing associated rock. Near the burial was a rare ear of sweet corn (dating to 1220-1280), found within trash.

The conjunction of a person who received intensive medical care following a traumatic injury and an elite delicacy found in a single room that was left open and relatively unchanged from its time of construction until well into the 1200s suggests that Aztec was not wholly converted into a mausoleum or a “typical” village during the Mesa Verdean occupation. Rather, these conjunctions show that portions of the site continued to operate in the same manner as earlier great houses such as Pueblo Bonito. In other words, these results add support to Lekson's (2015) notion that Aztec Ruins continued as the Chacoan middle place following the collapse of the Canyon. This continuation possibly lasted until the final abandonment of the site at the middle/end of the 13th century. Between the sealed doorways that closed off burials, and the rooms that had burned, nearly ¾ of Aztec's west ground floor was uninhabitable. The population may have left entirely, or lived at Aztec East and other surrounding sites.

As mentioned above, Morris noted that the last people to die at Aztec West were wrapped and laid on the floors of unburned rooms. He attributed this burial pattern lack of effort to burial rites precipitated by famine or pestilence. He noted that in his work in East Ruin, in which he dug approximately 20 rooms) he found no evidence of burning (Morris 1939:42). If this pattern is true and East Ruin did not burn as did its

sister site, then there are an array of scenarios that could account for the final conflagration at one site, and the possible peaceful and planned migration at the other. More data are needed before this tantalizing question might be effectively addressed.

Synthesis

These case studies can be assessed in light of general trends and patterns of behavior that have been suggested for the abandonment of Chaco and the depopulation of the Central Mesa Verde region. Ethnicity has been a major question since Morris first postulated his model of initial construction and occupation by Chacoans, followed by abandonment and later re-occupation and modification by Mesa Verdean groups. Ethnicity and identity are difficult to assess archaeologically. While it may be impossible to know who the occupants of Aztec were ethnically and how they identified themselves and their allegiances, it is clear that in the 13th century, the people who lived at Aztec West were acting in ways that differed significantly from the first occupants of Aztec West. This is manifest in behaviors that are not seen within Chaco Canyon or in other 12th century great houses. In this study, behavioral differences are seen in burial practice, in room remodeling (including the possible re-roofing of Room 139), the increased frequency of habitation of rooms, and the notable conversion of Chacoan rooms to both mortuary and trash-fill contexts. In the studies presented here, these trends were evident in Room 139 and Kiva D, as well as in the general burial analysis. Finally, while some great house rooms burned on small scales, Aztec burned catastrophically, as is demonstrated by Kiva D and the fire-ravaged rooms around it.

Whether this was purposeful, piecemeal, an accident or single event remains to be determined, though as was suggested in Chapter 4 a purposeful event is most likely.

The artifact assemblage, burial pattern and general behaviors demonstrated by 13th century occupants illustrate what William Lipe calls the “Central Mesa Verde Type” (Lipe 2010), which includes an array of material culture such as unit pueblos, south-facing household kivas with southern recess, bench, pilasters and cribbed roof, D-shaped and circular bi-walls, McElmo-style masonry, Mesa Verde pottery designs, kiva jars, mugs, corrugated jars and artiodactyl humerus scrapers (Lipe 2010:264-265). To the northwest, this period is marked by high levels of violence, and trends toward aggregation followed by migration and depopulation of the region. As demonstrated in the case studies, Aztec burials and the treatment of part of the buildings align with this narrative. There are more women than men buried on site, which may be an indication of captive-taking and warfare (Kohler et al. 2008). Three of the 22 women identified have indications of violence on their person, and at least two were buried in an inconsiderate manner (Room 180 with the stake, and Room 201) that may indicate abuse, lower social status, or warfare.

Room remodeling often subdivided large rooms, covered over Chacoan plastering and features, and added floor features such as storage pits and hearths. These architectural modifications were coincident with shifts in pottery type and style, and suggest population in-migration, and collapse of the group that produced the original architecture. These events coincided with upheavals in the Central Mesa Verde region (Glowacki 2015; Lipe 2006, 2010; Varien 1999), violence along the San Juan to

the west, and indications of resource depletion and general downturn in farming (Cordell et al 2007). If parallels with the region to the northwest may be applied at Aztec, then the people of Aztec may have high levels of aggregation and influx of population, which may have produced the extensive remodeling prior to final withdrawal from the site (Lekson and Cameron 1995). These dynamics and events may also explain the relatively high proportion of 13th century burials on and around the site. If families were the chief unit of migration this may explain the fragmented nature of the remodeling (small scale division of rooms into apartments), the chaotic burial clustering of small numbers of burials of people within rooms, and the possible short-term occupation of the site by a large number of people. This may be argued based upon the failure to maintain sanitary conditions, the expedient nature of the architectural remodels, and the conversion of rooms to trash and human waste receptacles which may have made long-term occupation untenable (or at least highly unpleasant). If this were case, the model would be that Aztec became a short-term way-station for refugees and migrants displaced by the unrest in the region Kohler (2008) called such places *refugium* sites.

This narrative may help explain the sprawled burial of the woman found by Boundey in the north wing, the burned children and adult in Kiva D, and the mistreatment of the women in the northeast quadrant such as the “Splinted Skeleton” and the “Witch of the San Juan”, and even the possible mass burials, perhaps caused by disease, warfare or sacrifice (Room 52, Room 41 among others discussed in Chapter 4). It may even explain the highly inconsiderate treatment of other individuals who were

walled into rooms, who had their remains vandalized, or may even represent multiple sacrifices (e.g., 13-15 infants in Room 52). We know from Pueblo ethnography and other archaeological examples that these types of burials may be representative of witchcraft, execution, sacrifice or despoilment of burials. These may reflect behaviors associated with blame, fear, discord, instability, resource depletion and violence. All of these traits support a narrative of a stressful, highly unpredictable period of instability that swept through the region in the 13th century.

The narrative is complicated. Burials of high status individuals continued through this period; even when the general health of the population indicates food shortages (Kohler et al 2010), there are roomfuls of corn in Aztec that may represent hoarding. There is also a diminution, but not a cessation, of high-status, long-distance goods in 13th century contexts. Many rooms have turquoise, macaws, olivella, walnuts and copper bells. In one case sweet corn was also found. This indicates either long-distance trade of walnuts, or in the case of sweet corn possibly long-distance knowledge. This might also indicate at least some continuation of hierarchical organization demonstrated at Chaco and Pueblo Bonito, with high status individuals into the 13th century as leaders or highly visible members of the groups which re-occupied the site.

Future Research

There is still much to examine in the data from Aztec. Remaining questions that were outside the scope of this dissertation include:

1. What kinds of features and artifacts are to be found in the upper stories of great houses?
2. What is underneath great houses?
3. What was the function of other small kivas in the great houses? What is in them, and how were they used?
4. Did Aztec continue to be a regional center after the 1140s?
5. Was it necessary to import labor and/or food into regional centers?
6. What new information is provided by the landscape data collected for a dozen or more sites in the immediate vicinity (less than ½ mile from Aztec West), which have been disappeared under various circumstances. These include small sites, a large site by the Animas River, roads, canals, grid gardens, and a possible tunnel between Aztec East and West.
7. Strontium isotope analysis and genetic testing of the sweet corn to determine where it was grown.
8. Applied analysis like those completed as case studies of Kiva D and Room 139, to as many other rooms in Aztec West as possible.
9. Oral history of Aztec's (the modern town) landowners, many of whom know of sites and still have a number of artifacts from Aztec (the ancient town).
10. Further analysis and study of elite and inconsiderate burials in relation to great houses and 13th century sites.
11. Population estimates based upon floor features and burial data.
12. A comprehensive analysis of final use of Aztec floors before abandonment.

Analysis of Analysis

There are a staggering number of potential variables to address when utilizing data of the type considered in this work. Whether multimodal analysis, which encompasses forensic photography, database and new map compilation, is the most effective means to deal with these data is still not clear. Data compilation was time-consuming, and much of what was assessed and analyzed was not used in these case

study analyses. With the publication of my database, future researchers should not need to endure the slog of matching three photographs taken from two different angles that were printed a dozen times, mislabeled and scattered to three repositories in four states. Whether my methods introduce unforeseen biases or other issues, or give primacy to certain data over others, has yet to be determined. The biases embedded in my database might include reinforcement of Morris's research foci as captured on film (for instance, based upon the subject matter, he was more interested in whole vessels and perishable objects than in burials or architectural features, etc.). Similarly, the unique or unusual may be most-oft represented in the record, as noteworthy or that which warranted specific mention. However, the comprehensive nature of the database construction — no paper or photo was left behind — should ensure that these data will not fall back below the radar, even if they have been not been used in the case studies included in this dissertation.

Much of the above narrative could be contested; but on the whole, the data support these statements. If indeed “history is the art of making an argument about the past by telling a story accountable to evidence” (Lepore 2012:15), then that is what I hope to have done (in a small part) with both examples of microhistories from three contexts and macrohistories that weave their stories into a narrative about Aztec West.

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Appendices

Appendix 1: Holdings/Raw Data Sources for Primary and Secondary Source Material from Repositories (AZRU, CUMNH, AMNH) visited.

Aztec Ruins National Park (AZRU)

Most of the holdings at AZRU are held in the curation facility at the back of the Visitor's Center. There are a number of vertical archive boxes that hold an array of photographs — many mounted with brief descriptions — and with reference to numbers that are not readily understood. These may be an original filing system the key to which has subsequently been lost. Ranger Cyresa Bloom and Tracy Bodnar (personal communication 2013) indicated that a photolog existed at one point, but that the data were lost at some point in history when a software conversion was lost. A number of these images found in the archive have also been digitized. For sake of continuity, I have kept the original numbering system used at AZRU (see below), and scanned images as AZRUxxx (original number). When no number were indicated on the image files, I labeled them AZRUunknown_xx and began to assign a sequential number as appropriate. Time did not allow for all of the files at AZRU to be scanned, but I did look at each image in the archive and if it appeared to be from Morris, or far more frequently, the Morris era (up until 1934), I scanned the files. In some cases I scanned stabilization or other images taken up until the 1960s if I thought they might prove useful in comparison with earlier work. Below is a compendium/description of all of the historic files that I perused at Aztec Ruins National Park. I have kept original description, but added helpful commentary in brackets when appropriate.

Box 1

0692.2-571.01 (late 1920/1930s, non-Morris images) Excavation and Reconstruction of Great Kiva. Stabilization projects, Museum exhibits: Approximately: 80 pics, 4th tab: construction of visitors trail = 50 pics (special activity events like dancing in Great Kiva) Last tab. Some aerials and early original photos. Possibly duplicates. ALL scanned.

76-77 Excavation of Great Kiva
Excavation of mound by visitor's center.

259 Excavations of Kiva J

1406: Small red patch of red wall plaster adhering to east wall of room 203 Charlie Steen, November 1938

1600: 1917.

Box 2

1594: Sherman S. Howe signing over his archaeological collection to Aztec Ruins National Monument. Superintendent Irving Townsend and party of visitors as Witness.
7-11-53

1st 1/3 mostly artifacts, many collected after Morris. SOME may be Morris shots of bundles of artifacts, staged.... Picked through to find in situ shots. Few.

1447: Photo by Boundey

12: Remains of mat

13: Remains of mat and other artifacts

1559: Approx 1929, photographed by George Grant

5467: August 8, 1929, photographed by George Grant

Vast quantity of photos are post-1935 artifact photo archives.

Box 3

Continuation of artifact photos. Pictographs in Room 117

1426: North wall petrographs, Room 117, AZRU

1427: 'Pictograph on plastered wall of Room 117. Homer Hastings, September 1955.

1429: 1929'

Tab 3: General pics of La Plata excavations

AZRU 19: pre-1934

283: 1905

823: Original ceiling Room 156, George Chambers 1962

828: North side of Room 182

830: Room 114, vertical split 8/62

831: Room 150, vertical split, 4/62

833: Room 114

835: Room 191

836: Room 175

1446: photo by Boundey

1448: photo by Boundey

1451: photo by Boundey, 1933

1452: photo by Boundey, 1933, looking northeast from top of ruins.

1454: photo by Boundey, 1933, wall detail in one of the rooms

1455: photo by Boundey, 1933, walls in eastern section

1456: photo by Boundey, 1933, closeup central walls

1457: photo by Boundey, 1933, mealing room

1458: photo by Boundey, 1933, typical walls

1459: photo by Boundey, 1933, door detail

1460: North section of ruin, about 1930

1461: photo by Boundey about 1930

1462: photo by Boundey about 1930

1463: photo by Boundey about 1930

1464: Room 202 1st story roof partially cleared, 1938
 1466: Museum entrance when museum was in ruins
 1468: Room 202, East Wall
 1470: Room 202, East wall, Steen, November 1938
 1471: Room 202, South wall, Steen, November 1938
 1472: Room 202, West wall, Steen, November 1938
 1473: Entrance into Room 202, from unencumbered room north of it.
 1474: Room 203, East Wall, Steen, Nov 1938
 1475: Looking South into room 202 before excavation. Some dirt has been removed before start of job. November 1939 (probably typo)
 1476: Room 203, northwest corner west wall was removed in prehistoric times and room 203 and 204 used as middens. Steen Nov 1938
 1477: Detail of doorway in corner of room. 1933
 1478: Boundey, c. 1930
 1479: North wing taken outside North wall looking SE, George Boundey
 1481: North side plaza, right of T-shaped door.
 1482: Large firepit found during grading operations near big Kiva. Steen, Nov 1938
 1485: Northeast section of Ruins. ? Earl Morris standing with ?
 1486: The ruins, Louis Caywood, Fall 1935
 1492: Detail of the portion of Aztec Ruins, showing old floor levels. June 23, 1946
 1493: Northside, Aztec Ruins
 1494: Part of west wall of Aztec Ruin. George Grant Neg 8. 'Logs are replacement put into the same sockets where the Indians had theirs H.H. 1957'
 1495: The Ruins. Prehistoric: notice the skirt.
 1496: Publicity, Nov 1, 1944
 1497: Publicity, Nov 1 1944. The Ruins as seen from the Northeast corner
 1498: Publicity, Nov 1944, Caywood
 1499: Aztec Ruins from the Tower Kiva, N Dodge, November 1944
 1500: Aztec Ruins from the West. Henry G. Peabody, June 30, 1928
 1501: Ed Ferdon and Jack Stoltz, September 1946
 1503: 'Old photo taken by Sherman S. Howe of Aztec, N Mexico, about 1880-1895, showing how north side of Aztec Ruins appeared at that time. (Original print and negative owned by Mr. Howe, copy neg. made by George Grant.'
 1504: AMNH 284221: Looking N.E. from S. center of west. Wing. A.R. About 1916
 1505: August 1955 Homer Hastings
 1506: Aztec Ruins as seen from the Hubbard Mound, some of which is shown in the foreground.
 1507: North central section of Aztec Ruins showing fallen roof timbers. Homer Hastings, June 1955
 1508: Looking west along North wing. Homer Hastings, June 1955
 1509: Parker Hamilton, May 1956
 1510: Parker Hamilton, May 1956
 1511: Northeast section of Aztec Ruin, Two occupations. One pre-Mesa Verde, and other Mesa Verde peoples. With Cummings. Albert H. Schroeder, August 11, 1936

1512: Aztec Ruins in 1922. Mrs. Ruth Nelson ,Belflower, California.
 1513: Aztec Ruins in 1922. Mrs. Ruth Nelson ,Belflower, California.
 1514: Aztec Ruins, Ray Rixey and L. Arnberger. May 8, 1951
 1549: Spring 1954, Hastings, corner doorway
 1560: Looking west along North wing. Homer Hastings, June 1955
 4697: Banded masonry in Aztec Ruin. George Grant. Wash neg # AZ 22. August 5, 1929
 1192: pit complex Room 51, 52, JCM, 6/68
 5470: Detail of north side of Aztec Ruins showing collapsed ceiling in one of the rooms. Grant. June 23, 1946
 5473: General view of AZRU from mesa north of side. George Grant. 5 Aug, 1929
 Robert Lister files
 5474: West Ruin from the Southwest. George Grant, 5 August 1929. From Robert Lister Files
 5475: West Ruin from the Southwest. George Grant, 5 August 1929. From Robert Lister Files
 5476: Screened doorway, West Ruin. George Grant c. 1929. Robert Lister Files.
 5486: Banded masonry. George Grant. 8 Aug 1929. Scanned back side.
 5487: Walls of Aztec Ruin. Sept 6, 1934. George Grant
 5500: Entrance to Parking Lot. Grant. 1934
 116: Kiva N
 711: Looking to East over Kivas L, J, H. 1933
 1601: 1933
 1602: Great Kiva, before reconstruction, 1933
 1637: Great kiva from west side towards east with ink pen arc of 'approximate location of arched wall, possibly underlying great kiva wall' written on back.
 1644: Kiva N, north wall pilasters, 1960
 1791: Kiva N, March 1956
 1926: Yucca Plant
 1398: Hubbard mound before excavation, Negative received by Region in 1956
 1548: Hubbard Mound, Homer Hastings, June 1955
 1520: Room 203. Midden cut for stratigraphic study. Steen. Nov, 1938
 1521: Room 204 stratigraphy in the midden. Steen, November 1938
 1523: burial
 1524: Burial 4, Steen, November, 1938
 1525: Burial # 8, Steen, November 1938
 1527: Pottery fragments. Probably Aztec ruins. George Boundey.
 31: Burial
 31: Burial pre 1934 (Also labeled photo AZRU 31)
 1608: Burial, human, specimen 1059
 1609: Burial, human, specimen 1059
 5493: Funerary offerings found with a Mesa Verde burial, west ruins, AZRU, George Grant, ca. 1930. From Robert Lister files. No neg.
 1865: Entrance to parking lot showing newly complete walls, entrance and landscaping. Ca. 1934

888: Parking area. CWA project #3. 10/34

889: 10/34

Box 4

Lots of stabilization, personnel 1940s

435: Ruins Road, c. 1925

1305: 1934, showing completion of parking project.

1531: Al Lancaster, 1945

79: Drainage system, ten inch vitrified pipe (tile main). NE corner of courtyard, adjacent to Kiva E, 1934

97: Stabilization of wall, 1934

112: S. Wall room 118 before stab

258: Kiva L before stab

801: Room 177 before stab

919: general cleanup 11/34

927: general cleanup 11/34 CWA Project 4

938: general cleanup 11/34 CWA Project 4

960: general cleanup 11/34 CWA Project 4

967: general cleanup 11/34 CWA Project 4

968: general cleanup 11/34 CWA Project 4

973: general cleanup 11/34 CWA Project 4

974: general cleanup 11/34 CWA Project 4

987: general cleanup 11/34 CWA Project 4

988: general cleanup 11/34 CWA Project 4

989: general cleanup 11/34 CWA Project 4

990: general cleanup 11/34 CWA Project 4

940: general cleanup 11/34 CWA Project 4

Box 5

1532: George Grant. Stab Kiva L, 1940

1538: Room 180. 1953, Lister files

1540: collapsed room before stab. Label say Room 195, incorrect?

1543: Room 202 West wall. Steen Nov 1938

1545: Indian CCC enrollees stabilizing exposed wall between 202 and 203. Steen. Nov 1938

1752: Kiva F, Northeast Corner, Stabilization Needs, 10/23/44

Rest of box mostly records stabilization from 1970s

Box 6 and 7 and 8

Stabilization from 1980/1990s and additions to Visitors center in 1950s

Box 9

Residences, sewer line north of West Ruin,

Box 10

nearly empty: negatives, housing/residences, publicity shots, 1940s

Box: horizontal no label

On shelf labeled 'historic photos to be dealt with AZR523A thru AZRU unknown20 — 39
Shart: 1978

Various folders with historic photos scanned for their historiographical content

Box labeled 'Found there old Aztec Ruins pictures 2-89, don't remember who gave them to me: Emory Minium.'

AZRUunknown041-83

Unknown62: Snake estufa during snake dance ceremonies. 1897. Snake man entering.
Possible George Pepper photo.

63: Miro and Pacheco Map

82: ceiling. Square tower house

Box Labeled with post-it note: 'Historic Photos: original, duplicates, pulled from archives.'

AZRU1536

AZRU 1192: Pit complex Room 51, 52. June 1960

Enter #s thru 2:08pm

Resize

Oversized Box to be scanned for CDA

AZRUunknown84

Maps of Ruins Rooms

C.W.G

12/33 to 4/34

American Museum of Natural History

The files related to Morris and Aztec Ruins are found in Special Collections, the Anthropology Section, and the Library at the American Museum of Natural History. This differentiation was kept when scanning each of the records and recorded. A number of Accessions were made by AMNH (see below) related to Morris's acquisitions, and these included correspondence, reports, maps, artifacts, human remains, etc. Much (but not all) of the artifacts are accessible on-line through the AMNH Research Database.

Several weeks were spent in the archives, but time and resources precluded scanning all the available materials. Below is a list of the scans made — both from Special Collections and from the Library photo archive. When no AMNH accession number was apparaent, I assigned AMNH_xxx number in sequential order.

In cases where these data duplicated images found at CUMNH or AZRU, I made note of the duplication. In cases where more than one physical print of an image was on hand, I scanned each and assigned sequential numbers, as it was impossible to tell if these were mere duplicates, or they were individual images from slightly different angles, etc. In some cases, this resulted in two to four images of the same, or very similar composition.

AMNH Special Collections

Catalog Number: M677

Accession Number(s): 1916-67, 1916-69, 1917-69, 1918-57, 1919-19, 1920-6, 1921-1, 1921-56, 1922-29, 1923-67, 1924-27, 1924-93, 1925-85, 1926-60, 1926-72, 1927-66, 1928-66, 1928-91, 1929-50, 1935-115, 1940-28

Collection size: 1.48 cubic feet

From the Earl Morris Archive Description: Author Unknown

The papers found here include notes, reports, correspondence, photographs, and maps for Morris's work at Aztec Ruin, at various sites on the Navajo Reservation and in the La Plata Valley, and at Canyon del Muerto and Canyon de Chelly. Also present are Morris's original field notebooks for the Navajo Reservation and La Plata Valley expeditions, and both Morris's and A.V. Kidder's original field notebooks from expeditions at Canyons del Muerto and de Chelly. Original field notebooks for Aztec Ruin are not present. Additionally, notes and drawings made by Ann Axtell Morris of petroglyphs and rock paintings at Canyon del Muerto are included here, as are notes, drawings and photographs pertaining to textiles from Canyons del Muerto and de Chelly. Also included here are miscellaneous reports and summaries pertaining to related southwest field work, and copies of a few *American Museum Journal* and *Natural History* articles about work at Aztec Ruin and at Canyon del Muerto.

Container Listing:

Box 1

Folder 1	Aztec Ruin, 1915-1917 — Correspondence, miscellaneous notes, photos
Folder 2	Aztec Ruin, 1918 — Correspondence, report, catalog
Folder 3	Aztec Ruin, 1919 — Correspondence, catalog
Folder 4	Aztec Ruin, 1920 — Correspondence, report
Folder 5	Aztec Ruin, 1921-1923 — Correspondence, reports, and miscellaneous
Folder 6	Aztec Ruin — Typescript Notes — Graves 8-16
Folder 7	Aztec Ruin — Typescript Notes — Graves 17-80
Folder 8	Aztec Ruin — Typescript Notes — Graves 81-101
Folder 9	Aztec Ruin — Typescript Notes — Rooms 27-69, Kivas D-I, Room XXV ²
Folder 10	Aztec Ruin — Typescript Notes — Rooms 85-19, S. Wing; Retaining Wall

- Folder 11 Aztec Ruin — Typescript Notes — Rooms 63-125², N. Wing; Kivas H-M, N. Wing
- Folder 12 Aztec Ruin — 'Notes on the Aztec Ruin, New Mexico, 1916' by E. Morris Original (handwritten) and typescript copy (2 copies)
- Folder 13 Aztec Ruin — Miscellaneous notes, summaries, and correspondence
- Folder 14 Aztec Ruin — Photographs
- Folder 15 Aztec Ruin — Photographs
- Folder 16 Aztec Ruin — 'Further Discoveries at the Aztec Ruin,' by E. Morris. Reprint from *American Museum Journal*, 1918 (3 copies)
- Folder 17 Aztec Ruin — 'The Aztec Ruin National Monument,' by Clark Wissler. Reprint from *Natural History*, 1927

Box 2

- Folder 1 Navajo Reservation, 1920 — Original field notebook
- Folder 2 Navajo Reservation, 1920 — Typescript copy of field notes
- Folder 3 Navajo Reservation, 1920 — Bennett's Peak — Reports, notes, catalog
- Folder 4 Navajo Reservation, 1921 — Original field notebooks (3)
- Folder 5 Navajo Reservation, 1921 — Typescript copy of field notes
- Folder 6 Navajo Reservation, 1921 — Report, notes, catalog
- Folder 7 La Plata Valley & Navajo Reservation House Burials, 1921 — Original field notebook
- Folder 8 La Plata Valley, 1921 — Report, catalog, correspondence
- Folder 9 La Plata Valley, 1921 — Original field notebooks (2)
- Folder 10 Loose handwritten field notes (unidentified, found with La Plata field notebooks)
- Folder 11 Navajo Reservation, 1922 — Original field notebooks (2)
- Folder 12 Navajo Reservation, 1922 — Typescript copy of field notes
- Folder 13 Navajo Reservation, 1922 — Report, notes, catalog
- Folder 14 Navajo Reservation, 1923 — Newcomb's Mesa — Original field notebook
- Folder 15 Navajo Reservation, 1923 — Newcomb's Mesa — Typescript copy of field notes
- Folder 16 Navajo Reservation, 1923 — Mitten Rock — Original field notebook
- Folder 17 Navajo Reservation, 1923 — Mitten Rock — Typescript copy of field notes
- Folder 18 Navajo Reservation, 1923 — Report, notes, catalog, correspondence
- Folder 19 Navajo Reservation — Plans (unidentified) and petroglyph drawings

Box 3

- Folder 1 Canyon del Muerto, n.d. — Feather box / Tse-a-ha-tso — Original field notebook
- Folder 2 Canyon del Muerto, 1923 Bernheimer Expedition — Caves 1 & 2, Bag House, Mummy Cave, Tse-a-ha-tso — Original field notebooks (3)

Folder 3	Canyon del Muerto, 1925 Season, A.V. Kidder — Mummy Cave, Sliding Rock Ruin — Original field notebooks (3) and loose-leaf field notes
Folder 4	Canyon del Muerto, 1929 — Original field notebook
Folder 5	Canyon del Muerto, n.d. — Mummy Cave Burial — Original field notebook
Folder 6	Canyon de Chelly — Casa Blanca, 8 High Bank[?] — Original field notebook
Folder 7	Canyon del Muerto, 1923 — Notes, report, catalog
Folder 8	Canyon del Muerto, 1923 — Partial catalog of finds
Folder 9	Canyon del Muerto, 1924 — Report, catalog
Folder 10	Canyon del Muerto, 1925 — Notes (E. Morris and A.V. Kidder), photographs
Folder 11	Canyon del Muerto, 1925 — 'An Archaeological Reconnaissance into the Hospitibito Wash Country in Northeastern Arizona.' Typescript report by W.H. Claflin, Jr.
Folder 12	Canyon de Chelly, 1926 — Notes, report, catalog
Folder 13	Canyon del Muerto and Canyon de Chelly, 1926 — Casa Blanca/White House — Report
Folder 14	Canyon de Chelly — White House Excavations — Notes, maps, report
Folder 15	Canyon del Muerto and Canyon de Chelly, 1927 — Report and catalog
Folder 16	Canyon del Muerto, 1929 — Report and catalog
Box 4	
Folder 1	Canyon del Muerto — Notes on painting (Ann Morris)
Folder 2	Canyon del Muerto — Painted Kiva, Mummy Cave — Drawings
Folder 3	Canyon del Muerto — Mummy Cave — Drawings for a set of exhibition models (A.V. Kidder)
Folder 4	Canyon del Muerto and Canyon de Chelly — 'Rock Paintings and Petroglyphs of the American Indian,' 1930. The Pictograph Project, AMNH. (3 copies)
Folder 5	Canyon del Muerto and Canyon de Chelly — Textiles — Notes on weaving techniques
Folder 6	Canyon del Muerto and Canyon de Chelly — Textiles — Notes (includes preliminary notes by Ichikawa and Weitzner)
Folder 7	Canyon del Muerto and Canyon de Chelly — Textiles — Drawings (Ichikawa and Weitzner)
Folder 8	Canyon del Muerto and Canyon de Chelly — Textiles — Photographs and negatives
Folder 9	Canyon del Muerto — 'Tomb of the Weaver,' by E. Morris. <i>Natural History</i> , 1948.
Folder 10	Canyon del Muerto and Canyon de Chelly — Photos
Folder 11	Summary of Southwestern field work, 1909-1921
Folder 12	General summary of work, 1913-1923

Folder 13	Miscellaneous memoranda regarding Southwestern fieldwork
Folder 14	Notes on previous explorations in the La Plata area, 1913-14
Folder 15	La Plata Valley, Pueblo Bonito and Chaco Canyon, 1916 — Correspondence
Folder 16	San Juan Region, 1915 — Canyons Carriso, Gobernador, and Frances, and La Plata Valley — Correspondence
Folder 17	Chronology of the San Juan area
Folder 18	San Juan Valley — Photographs
Folder 19	Notes on mummies, dictated by E. Morris, 1924
Folder 20	Ogden Mills survey, 1927 — Report by H.L. Shapiro
Folder 21	Miscellaneous newspaper clippings and photographs

Maps

Folder 1

'Aztec Ruin Sept. 1916'
 'Aztec Ruin Oct. 1917'
 'Aztec Ruin Oct. 1917' (blueprint)
 'Aztec Ruin Dec. 1921'
 'Aztec Ruin Dec. 1921' (blueprint)
 'Aztec Ruin Dec. 1923'
 'Kiva D Showing Situation of Contents'
 Unlabeled maps, apparently of Aztec Ruin (5)

Folder 2

'Canons del Muerto from Tsehatso Cave to Antelope House'
 'Canons del Muerto and de Chelly, Antelope House-Casa Blanca'
 'Mummy Cave' (rolled)
 'Casa Blanca, Lower Ruin Only'
 'Tseahatso Cave'
 'Sliding Rock Ruin'
 'Pre Kiva I'
 Unlabeled maps and sketches, apparently of Canyons del Muerto and de Chelly (~50)

Notes:

The following information was taken from a draft inventory, November 2004 made by Carrie Heitman & Abby Holeman and left as printed note placed in the file for future Morris researchers:

More information on Morris and his southwest expeditions can be found in *Earl Morris and Southwestern Archaeology* by Florence C. Lister and Robert H. Lister (University of New Mexico Press, 1968) and *Among Ancient Ruins: The Legacy of Early H. Morris* by Frederick W. Lange and Diana Leonard (University of Colorado Museum, 1985), as well as in tributes written by A.V. Kidder and Robert F. Burgh

that were published in *American Antiquity* Vol. 22, No. 4, pp. 390-397, and *American Anthropologist* Vol. 59, No. 3, pp. 521-523, respectively.

It seems as though AMNH documentation may, in fact, interdigitate with UCM documentation. We are still identifying relevant correspondence (w/various archaeologists, museum personnel, and also BIA, DOI, and Smithsonian staff to whom we provided reports as required by Antiquities permits). As I mentioned before, we also have a number of maps, drawings, and photographs that are not well organized or described. In compiling inventories, the CRO has relied primarily on something we call 'Archive ID #89' and the originals from it. Archive ID #89 is the number the CRO gave a notebook of transcribed notes and reports that is in our archives (we did this because we needed to have some way of referring to, and locating, material in the archives - the current archivist is revamping the system and doesn't use our numbers. She is also reorganizing some material, so I can't guarantee that this information will all be together at a later date). Currently, there is a big box (that's the old system of referencing) that contains the original notebooks, maps, etc., transcribed in Archive ID #89. Some other transcribed materials (e.g., reports) are likely to be in correspondence and/or accession files. At any rate, below is the basic table of contents that we've created for Archive ID #89. Again, this is not all that we have regarding del Muerto and de Chelly, but we refer to it as much or more than to the individual accession files (1923-67, 1924-93, 1925-85, 1927-66, 1929-50, 1940-28). (Heitman and Holman 2004).

Fieldnotes, Reports, Catalogs.

E.H. Morris, A.V. Kidder, W.H. Claflin
Canyon del Muerto 1923, 1924, 1925
Canyon de Chelley [sic] 1926
del Muerto and de Chelley [sic] 1927
del Muerto 1927

- I. Canyon del Muerto, 1923. Notes, Report, Catalogue, by E.H. Morris.
- II. Canyon del Muerto, 1924. Reports. Catalogue.
- III. Canyon del Muerto, 1925. Field Notes by A.V. Kidder.
- IV. An Archaeological Reconnaissance into the Hopitibito Wash Country. Report by W. H. Claflin, Jr., 1925. Work in connection with Canyon del Muerto excavations that year.
- V. Canyon de Chelly, 1926. Notes on Excavations, Catalogue. E.H. Morris.
- VI. Canyon del Muerto and Canyon de Chelly, 1927. Catalogue and records by E.H. Morris.
- VII. Canyon del Muerto, 1929. Report and Catalogue. E.H. Morris.

General Locations and Expedition Participants by Year (based on information in Archive ID #89)

1923

May 19 - June 12: Captain Tom's Wash near the Newcomb trading post also area south of the western base of Carriso Mountain

July 19 - August 15: Mitten Rock area

September 24 - November 18: Canyon del Muerto Earl Halstead Morris

1924

Canyon del Muerto

Earl Halstead Morris

1925

September - October: Canyon del Muerto, Canyon de Chelly
(October 9 - 11: Hospitibito Wash Country - W. H. Claflin)

Earl Halstead Morris

Alfred Vincent Kidder

George Clapp Vaillant

Erich Schmidt (Sep. 20 - Oct. 7)

Ann Axtell Morris

Oscar Tattman

William Henry Claflin, Jr.

Helen Claflin (collecting herbarium)

Raymond Emerson (surveyor)

Mrs. Raymond Emerson

Monroe Amsden

George MacClellan (cook)

1926

October 1 - November 16: Canyon de Chelly (mainly White House)

Earl Halstead Morris

Alfred Vincent Kidder

1927

Canyon del Muerto, Canyon de Chelly

Earl Halstead Morris

1929

July 10 - August 16: Canyon del Muerto

Earl Halstead Morris

Edward M. Weyer, Jr. (map and geographical observations)

Ann Axtell Morris

Other files at AMNH that Contain Morris/Aztec Materials

(not in any great number, but checked, as the materials were well-mixed chronologically)

Small bound notebook 'Res, 1921, B III, E.H. Morris's

Probably corresponds to work done on the Navajo reservation conducted that year.

Notebook is full of writing.

A typed version of these notes is available in the 'Photographs, Southwest Archaeology, Ruins: San Juan Valley, Canyon de Chelly, and Canyon del Muerto' folder.

Small bound notebook 'Canyon del Muerto, E.H. Morris's

3 pages.

1 sleeve of photographs — Aztec Ruins

These images appear to have been marked up with publication instruction — but most of them have the word 'omit' written on the back. We don't recognize most of these images from the Aztec volumes.

1 sleeve of photographs — Aztec burials, bone splints

Published photos from Morris's work at Aztec.

Small bound notebook 'Res, 1921, B I, E.H. Morris's

Probably corresponds to work done on the Navajo reservation conducted that year.

Notebook is full of writing. Also contains Navajo word lists on the front and back covers.

A typed version of these notes is available in the 'Photographs, Southwest Archaeology, Ruins: San Juan Valley, Canyon de Chelly, and Canyon del Muerto' folder.

Small bound notebook 'Res, 1921, B II, E.H. Morris's

Probably corresponds to work done on the Navajo reservation conducted that year.

Notebook is full of writing.

A typed version of these notes is available in the 'Photographs, Southwest Archaeology, Ruins: San Juan Valley, Canyon de Chelly, and Canyon del Muerto' folder.

2 copies of 'Further Discoveries at the Aztec Ruin' by Earl H. Morris. Reprinted from *The American Museum Journal*, Vol. XVIII, No. 7, pp. 602-210, 1918.

Small bound notebook 'Res, 1922, B I, E.H. Morris's

Probably corresponds to work done on the Navajo reservation conducted that year.

Notebook is full of writing. Typed version of these notes is also included in this box. 121 pages

Small bound notebook 'Res, 1920, Miss Ann, A. Ann Axtell'

Notebook is full of writing — lists burial information for many burials at 'Burial Mound 1' and 'Burial Mound 1.' I (C. Heitman) am assuming that these are the Chaco Canyon burial mounds...but I can't be certain. This interpretation is also corroborated by an un-mailed letter in this notebook to Mrs. West in which Ann talks about a visit by Bernheimer and advice that Mr. Wetherill gave him regarding potentially dangerous high waters.

Small bound notebook 'Reservation — Newcomb's, 1923'

This notebook is half full. Contains burial information, excavation field notes, and specimen lists. Typed version of these notes is also included in this box. Page numbers 138-143

Small bound notebook 'Res. — 1922, Book II — E.H. Morris's

Notebook is full. These field observations are almost entirely devoted to burial descriptions. Typed version of these notes is also included in this box. Page numbers 122-137

Small bound notebook 'Mitten Rocks 1923'

Notebook is full of writing. Observations in this notebook are almost exclusively devoted to burials. Typed version of these notes is also included in this box. Page numbers 144-166

Folder: 'Wissler/E.H. Morris Memoranda re: fieldwork in San Juan Region'

Contains: Typed manuscript entitled 'Chronology of the San Juan Area by Earl H. Morris.' Text is typed on legal pad sized lined paper. Discusses ceramic sequences. 7 pages long

Typed manuscript written by Morris discussing his career-long excavation activities in chronological order. This document will be helpful. Includes a memorandum page and notes added by C. Wissler asking Morris for more specific information. 14 pages

Folder: 'E.H. Morris Aztec Ruin notes Graves 8-16; 81-101'

Contains two sets of typed documents:

- (1) 'Graves 8-16 Original and 1 copy.' 19 pages. Organized by grave number.
- (2) 'Graves 81-101 Original.' 24 pages. Organized by grave number.

Folder: 'E.H. Morris Aztec Ruin notes Rooms 85-109 S. Wing, Retaining Wall'

Typed notes. 25 pages. Includes one sketch drawing of retaining wall.

Folder: 'Aztec Ruin — Misc. memoranda re: history'

Contains information, artifact accessions, letters, etc. on both the general history and administrative history of Aztec Ruins. Also includes what appears to be a draft of the history of Aztec Ruin.

Folder: 'E.H. Morris Aztec Ruin notes Graves 17-80'

Approximately 75 pages. Organized by grave number.

Folder: 'E.H. Morris Aztec Ruin notes Rooms 27-69; RoomXXXV²; Kivas D-I (original and 1 copy)'

The original contains 4 pencil drawings. These room descriptions give dimensions, catalogue numbers, and some stratigraphic information. Approximately 50 pages.

Folder: 'E.H. Morris Aztec Ruin notes Room 63-125²; North Wing Kivas H-M, North Wing'

The original contains some original drawings. These room descriptions give dimensions, catalogue numbers, descriptions of room collapse sequences, upper story contents, and stratigraphic information. Approximately 50 pages.

Folder: 'E.H. Morris Navajo Reservation Plans (un-identified), and petroglyph drawings'

Roughly 10 cards with petroglyph drawings (some from Mummy Cave), and 4 graph paper drawings — none are labeled.

Folder: 'E.H. Morris Fieldnotes Aztec Ruin, 1916 Original and 2 copies'

Original handwritten field notes (look to be a re-written draft). Entitled 'Notes upon Excavations at Aztec N. Mex. 1916.' The cover page also includes the following note:

Detailed measurements of the rooms excavated in 1916 were not taken except in a few instances. The architectural features of the Aztec Ruin being relatively permanent, it was thought best to leave the measuring of the rooms and a description of the methods and materials used in wall construction until the following season.

Typed version of these field notes is 46 pages long.

Loose object in Box: 'Catalogue of Archaeological Specimens Secured in the Navajo Indian Reservation, Arizona and New Mexico During 1923 By the American Museum of Natural History Under Permit Issued march 3, 1923 and Amended July 19, 1923.'
7 pages. Acc 1924-10 (this accession number is written in the upper right hand corner of the first page of this document)

Folder: 'Ann A. Morris Petroglyph Notes n.d.'

Folder contains typewritten notes on ruins in Canyon del Muerto — 10 pages.

Notebook: 'E.H. Morris, Aztec Ruins, Reports & Catalogues'

First Section (unlabeled):

- 3 pages of photos from Aztec in 1915 (6 photos all together)
- 3 page letter from: N.C. Nelson, to: C. Wissler; Date August 6, 1916; this letter details progress made in the initial year of excavation at Aztec (1916), also discussions of Morris's trip to Bonito in Chaco canyon and other project issues.

- Copy of C. Wissler's publication in 'Natural History', Vol. XXVII, No. 3, 1927, pp. 195-201, 'The Aztec Ruin National Monument'

Notebook Section Title: 'Aztec Ruin 1916'

- Partially inked map of Aztec, showing the East Wing (eastern portion and the NE and SE corners of the West Ruin) and what rooms had been excavated or
- sketch map of Aztec Ruin before excavation, labeled 1915
- Brief typed summary of Aztec Ruin for the museum (part of publication?), no date or author
- Typed Letter, To: C. Wissler, From: N.C. Nelson, Date: August 1, 1916 discusses process of opening the excavation, initial clearing of site, and progress made on excavations since, Abrams expectations, wall repair, and other project details. Stapled to a sketch map of Aztec Ruin with profiles (3 pages w/ map)
- Typed Letter, To: C. Wissler, From: E.H. Morris, Date: August 21, 1916, discusses excavation progress and wall repair, hand-written p.s. note at bottom: 'the Nelsons left last Tuesday' (2 pages)
- Typed letter, To: C. Wissler, From: E.H. Morris, Date: September 3, 1916; discusses closing of the project for year of 1916: notes specimens shipped to AMNH in NYC, 34 rooms and 3 kivas excavated, wall repairs (1 page)

Notebook Section title: 'Aztec Ruin 1917'

- Typed letter, To: C. Wissler, From E.H. Morris, Date: June 14, 1917, notes that excavations @ Aztec were begun 'last Monday', and general excavation progress, and where he will be digging first; of back of page is a hand-written note from Wissler to Morris, this has been crossed out (2 pages, w/ note on back)
- Typed letter, To: C. Wissler, From: E.H. Morris, Date: June 22, 1917, notes progress in excavations, notes about artifacts found, and burials (3 pages)
- Typed letter, To: Pliny E. Goddard, From: E.H. Morris, Date: June 24, 1917, excavation progress, specimens, and money (2 pages)
- Typed letter, To: C. Wissler, From: E.H. Morris, Date: July 8, 1917, notes excavation progress and specimens (2 pages)
- Typed letter, To: Pliny E. Goddard, From: E.H. Morris, Date: July 22, 1917 notes about quantity and quality of specimens from Aztec, little provenience info., but some description (2 pages)
- Typed letter, To: C. Wissler, From: E.H. Morris, Date: August 12, 1917, notes that at this point the East Wing is almost cleared, and specimens, Morris talks about the army draft and how he was 'caught in the first army draft' and is making arrangements for an exemption, and asking for museum help w/ military exemption (2 pages)
- Typed letter, To: C. Wissler, From: E.H. Morris, Date: September 10, 1917, continued update on excavation progress (notes that Osborn is president of the museum) (2 pages)

Notebook section title: 'Aztec Ruin 1918'

- 4 typed letters, To: C. Wissler, From: E.H. Morris, Dates: July 15 (2 pages), July 29, as of this date, 10 rooms, and one kiva had been excavated (3 pages), September 23 (2 pages), December 8 (1 page-not including report-see below #19), 1918 (8 pages in all) notes on excavation progress, money and specimens
- 1 typed letter, To: Pliny E. Goddard, From: E.H. Morris, Date: July 15, 1918, mostly about project budget
- Letter dated December 8, 1918 accompanied by a 4 page report (descriptions of area, ruin, excavations, and specimens) and a 47 pages specimen list labeled 'Specimen Catalogue Season of 1918' contains catalogue number, artifact, limited provenience

Notebook section title: 'Aztec Ruin 1919'

- 6 typed letters To: C. Wissler, From: E.H. Morris, Dated: September 15 (2 pages), September 21 (2 pages), October 14 (2 pages), November 2 (1 page), December 3 (1 page), all 1919, January 1 discusses property transfer from Abrams to AMNH (1 page) 1920, all discuss excavation progress in varying specificity from details about specific burials or rooms to general notes on progress and specimens, as well as some notes about general project issues (mostly budget)
- 62-page specimen list, broken down into the following sections:
'Catalogue of Specimens from the Aztec Ruin, Season of 1919, copied from Book III' (25 pages)
'Catalogue of Specimens from the Aztec Ruin, Numbers 3549 to 4654, Inclusive' (20 pages)
'List of Specimens From the Aztec Ruin, Numbers 4655 to 5063, Inclusive' (12 pages)
'List of Specimens From the Aztec Ruin Field Numbers 5064-5228, Inclusive' (3 pages)
'List of Specimens from the Aztec Ruin' (1 page, numbers 5229-5247, inclusive)
'Catalogue of Archaeological Specimens Secured In The Aztec Ruin National Monument, New Mexico, In 1923, By The American Museum of Natural History Under Permit Issued March 10, 1923.' (3 pages)
'Catalogue of Specimens From The Aztec Ruin Secured By The American Museum of Natural History During 1925' (2 pages)

Notebook section Title: 'Aztec Ruin 1920'

(This section consists solely of typed letters between Morris and Wissler.)

- 9 typed letters, To: C. Wissler, From: E.H. Morris, Dates: February 3 (1 page), March 2 (1 page), March 31 (1 page), May 5 (1 page), June 1 (1 page), September 7 (2 pages), September 7 (2 pages — different from the other one of this date), November 1 (1 page), December 1 (1 page), December 22 (2 pages), all 1920, all discuss progress made on the excavations, wall repair, specimens and various project details.

Notebook section title: Aztec Ruin 1921'

- typed list of expenditures
- 11 typed letters, To: C. Wissler, From: E.H. Morris, Dated: February 8 (1 page), February 23, - appears to be first mention of Great Kiva excavations (1 page), March

1, Great Kiva (2 pages), March 25, mentions Great Kiva, but not much (2 pages), March 31, finished excavating the Great Kiva (1 page), May 3 —mentions Bernheimer as *possible* source of funding (2 pages), May 4 (1 page), June 2 (1 Page), August 2 (1 page), August 2 — mentions time at Pueblo Bonito (1 page), October 24 (1 page), November 1 'Excerpt from letter of November 1, 1921. Mr. Morris to Dr. Wissler (Report of work for August, September, and October w/ note that the remainder of the letter reports on work in La Plata Valley and on the Navajo reservation) (1 page), November 3 (2 pages), all 1921, note excavation progress, various details of some burials and specimens.

Section of notebook title: 'Aztec Ruin 1922'

- Typed list of expenditures
- 5 typed letter To: C. Wissler, From: E.H. Morris, Dated: February 3 (1 page), February 28 (1 page), March 31 (1 page), May 1 discusses the Annex (?) (1 page), November 25, pretty good descriptions in this one (2 pages)

Section of notebook title: 'Aztec Ruin 1923'

- 2 page typed report for Aztec titled 'Report on Archaeological Investigations For the Season of 1925 In The Aztec Ruin National Monument, New Mexico, Under Permit of March 10, 1925, Issued to The American Museum of Natural History' — description of excavations done this year, I don't know why a report labeled 1925 is in the 1923 section)

Section of notebook title: 'Aztec Ruin 1924'

- 1 page (2 paragraphs) typed report on the Aztec Ruin excavation titled: 'Archaeological Investigations in the Aztec Ruin National Monument During 1924 By The American Museum of Natural History' — very brief description of excavations and site repair

Section of notebook title: 'Aztec Ruin 1925'

- 3 page, typed report on Aztec excavations titled: 'Archaeological Investigations In The Aztec Ruin National Monument During 1925 By The American Museum of Natural History' — brief description of excavation and site repair

Section of notebook title: 'Maps, Charts, etc.'

(All maps hand-drawn unless otherwise noted.)

- Sketch map of Aztec ruins showing west and eastern portion of ruins, no date visible, title: 'Sketch map showing relation of proposed addition to the Aztec Ruin National Monument to the existing monument, and indicating the boundaries of the proposed addition' —alfalfa field that existed south of the ruin prior to excavation is on the map
- Map of Aztec Ruin with monument boundaries, shows at least 3 tracts of land —can correlate these tracts with the map of land tracts in Lister 1990, title: 'Surveyed Jan. 1(?)5, 1916 by Chas (uncertain, not legible) 7. Holly, County Surveyor, License no. 11'
- Map of 4 corners area drawn by Morris with red X's indicating sites he explored in 1920, 1921, 1922

Notebook: 'E.H. Morris, La Plata Valley, Pueblo Bonito, Navajo Reservation'

CONTENTS

Morris notebook, Spine Reads: 'E.H. Morris, La Plata Valley, Pueblo Bonito, Navajo Reservation.' First page has an Index of the contents of the notebook, note at top of first page reads: 'Index to principal contents of the volume of E.H. Morris's communications, field permits, field notes, and field catalogues pertaining to archaeological work in the Southwest, ranging from the years 1913 to 1923.'

1. Most of this volume pertains to Morris's work at La Plata, but there are 2 pages that mention his work at Pueblo Bonito
2. Typed letter, To: C. Wissler, From: E.H. Morris, Date, June 5, 1916, mentions work at Pueblo Bonito, not in any detail, more useful for the dates
3. One page typed report on brief work done at Pueblo Bonito by Morris, in June of 1916

Untitled/Unnumbered Box

CONTENTS

9 Maps

Map 1

Aztec Ruin October 1917. Blue map with outline of Aztec Ruin. Map contains handwritten annotations. Map in two pieces, rolled together.

Map 2

Broader view of Aztec Ruins National Monument and lands to the east — including lake, pond, marsh — areas to the east. Includes free hand drawings of ruins A, B, C, D and an arrow showing the direction of E.

Map 3

Aztec Ruin, December 1921. In pencil. Contains room numbers, a shading code indicating the relative heights of walls, building numbers, and group numbers. Map is in two pieces, rolled together. Scale 1'=20.' Large scrolls.

Map 4

Aztec ruin. Large scale map. Architectural plan. No room numbers. Various rooms are labeled '528', '527-28', '525 or 6, 528', '524' '524-5'...most of these numbers are in rooms along the outside perimeter. Kivas are labeled and drawn in greater detail.

Map 5

The Aztec Ruin. December 1923. Large scale architectural plan — bears a strong resemblance to Map #3 — shaded with relative wall heights. This map also includes an

area to the west of Aztec ruin referred to as 'The Annex' — appears to be a conglomeration of buildings. Includes buildings 2, 3, 4, 5, 6, and 'Group 7.'

Map 6

A white on blue background version of map 3.

Map 7

Two maps rolled up together.

The first is an architectural plan view of Aztec Ruin — dated September 1916. Seems to show areas of excavation.

The second is a detailed architectural plan view of the Kiva D at Aztec. Is entitled 'Kiva D, Showing situation of Contents.' This map has objects drawn in place as well as object numbers written in at the location found.

Map 8

Large, roughly 22x18cm untitled map of Aztec Ruin. Architectural plan view. Shows schematics of room parameters and kiva parameters. Presumably this map was made prior to extensive excavation. The eastern corner (rooms 1-29) area is drawn in architectural detail so presumably this map is from Morris's earliest systematic excavation of the ruin. Kiva B is drawn in detail, but kivas a, c, and d are just roughly sketched in.

NOTE: A. Holeman came across seemingly the exact same map — but a copy in better condition in the Nels Nelson collection: Storage Unit: 'Southwest Reconnaissance 1912-1917, Box 2' Folder Designation: 'Nelson, N.C., Aztec Ruin Field Notes, 1916 2/Folder 11' Title of this version of the map is '*Aztec Ruin, According to Superficial appearance before excavation commenced and with the SE corner laid bare in 1916. N.C.N.*'

Map 9

Like Map 8, this map is an architectural plan view of Aztec Ruin. The map has a title: 'Aztec Ruin, October 1917.' Rooms 1 — 69 are drawn in detail as are kivas A through G, and Kiva I (Room 68 of Kiva H was excavated but the rest of Kiva H was not).

Untitled Box

CONTENTS

Notes, maps, articles, bound notebooks, and photos.

Folder: 'SOUTHWEST FIELD WORK, Miscellaneous reports and notes'

Contains miscellaneous notes and reports on Canyon del Muerto, Canyon de Chelly, the Navajo reservation, and other SW expeditions from various years. One item of interest may be:

1 typed page labeled 'Memorandum on expeditions by Mr. Charles L. Bernheimer.' This page may be of interest in sorting out dates of Morris's and Bernheimer's association and work together.

AMNH Anthropology Section

Box 1 Folder 14: Photographs Aztec Ruin.

AMNH001—AMNH042

Three pages have 2 photos per page. Will have to break apart and reassign. Almost all have Morris's handwritten description on back. But difficult to make out since photos are glued to paper.

Many have numbers on back.... Ex: straight on shot of north-center of west ruin is #22. Photolog? Cannot systematically see because of mounting... but some clear indicators on some of the images.

Scan 19. 'Back says: North Wing, above Oven 65.' More but can't make out.

Box 1 Folder 15

AMNH043 –AMNH0070

Loose pics (some of burial of woman with splinted wrist).

Scanned photos and descriptions on back.

Box Folder 1

First packet of data has photos attached to report written by Morris (presumably) after first season of work.

AMN071-AMNH082

Box 1 Folder 3

AMNH083

Box 1 Folder 5

AMNH084-AMNH0100

Box 1 Folder 9

AMNH0101-AMNH109

TEST Room XXXV-2

Box 1 Folder 10

AMNH 110 — 112

Box 1 Folder 11

AMNH 113-119

Box 1 Folder 12

AMNH 120- 129

Box 1 Folder 16

AMNH 130-139

Box 1 Folder 17

AMNH 140-146

University of Colorado Museum of Natural History

The Morris archives at the CUMNH are stored in two areas.: A number of 4x6 black-and-white photographs are found in the upstairs photo archive. These photos have very little (if any) description associated with them and are likely reprints that are filed away. Some have been mounted to cards, so it is not clear if a description was written on the back. No photo log is in evidence. When no tracking information was visible, I lightly penciled an arbitrary, sequential number in the back, top right corner of the photos scanned. These images are well-mixed with other Morris-Era photographs, and thus can be found in pockets throughout the archive. After several go-throughs, I am confident that most, if not all, of the images from Aztec were scanned, but I cannot say with certainty that all were scanned.

The bulk of the Morris Archives, which is made up predominantly of documents which include correspondence, report drafts, artifact inventories, field notebooks, and some photographs (often mounted in notebooks) are located on the 2rd floor of the CUMNH in Room 210. These are stored in two filing cabinets, 4 drawers each and make up about 30 linear feet of archives. The information contained includes Morris's entire career.

Morris was scrupulous about record-keeping (he mimeographed most of his correspondence after 1920 or so), and is likely responsible for the ordering of much of the archive. However, while most is clearly marked and neatly ordered, there are a number of folders that include disparate and miscellaneous items. In some instances, these were impossible to go through systematically. The chief folders associated with Aztec, and the immediate post-Aztec period (1915 — 1934) were all located and digitized. Below is a list of the works scanned.

File Cab 1, Drawer 1

Files 200-250

EHM/002-C11.D1 #002

Earl Morris Bibliography 001-005

EHM/002 — C11.D1 #103

Many drafts of same document in this file.

Scanned cleanest only. Multiple catalogs composed by Morris and JBW of work after Aztec, including detailed catalogs of Canyon del Muerto work. And radiocarbon dates of skeletons from Del Muerto contracted by JBW.

006-014

EHM/002 C11.D1 #005

'Archaeology of The Southwest Being Transformed into History'

015-028

EHM 002/C11.D1 #012

030 - 041

033 on back 'me'

(others, perhaps to tag, are Bareback Kidder boys and Pecos conference, Zuni bringing in firewood, 036 — Earl and Ann. Ann looks like she has a video camera.

EHM 002/C11.D.1 #013 'Aztec Ruins Notes'

Clearly misfiled maps actually from Mesa Verde

Catalog of Artifacts/photos from Aztec

Report by JohnWill Farris to Morris... IMPORTANT

042 — 159

EHM/002 C11.D11 #014 'Aztec Notes'

160-182

EHM/002 — C11.D1 #15 'Miscellaneous

183 — 185

This large chart accompanied by tiny negatives, which may be those of the actual tree ring data...

EHM / 002-C11.D1 #31

Notebook that 'Contains notes on some of the Aztec Kivas'

EHM / 002 C11.D1 #34

Some materials found in Norlin library.

Photo of two men and a number of skeletons in a cliff alcove has a label on back 'del Muerto 1923'.

186-190

EHM / 002 C11.D1 #035

191 — 211 numerous notes on kivas, refuse mounds.

EHM 002/CU11.D1 #38

19-27

EHM 002/CU11.D1 #67
28-60

File Cabinet 1, Drawer 3

EHM 002/-CU11.D3 #146
212-213 Field Notebook

EHM 002/-CU11.D3 #147
Field Catalog, Typed
214-331

EHM File Cabinet 2 Drawer 5

EHM 002/-CU12.D1 #170
332-356

EHM File Cabinet 2 Drawer 6

(they seem to be labeled Drawer 2 on the files).

EHM/001 C12.D2 #180 Miscellaneous
061-70

EHM/001 C12.D2 #182 Axtell
71-82

Robert Burgh:

EHM — C12.D2 #189
83-84

David I Bushnell

EHM/001-C12.D2 #192
85-92

Douglas Byers

EHM — C12.D2 #193
93-97

EHM — C12.D2 #193
Miscellaneous
98-103
104

EHM 001 C12.D2#201
105-108

EHM 001 C12.D2#203

109-118

EHM/001 C12.D2 #204 Department of Interior Part 1
119-163

EHM/001 C12.D2 #205
164-199

EHM/001 C12.D2 #205 Dept. of Interior
200-273

EHM/001 C12.D2 #208 A.E. Douglass

357-377 (Tree ring dates from Aztec)
378-385 Clarification dates of Aztec/Bonito
Many more letters re: dates from de Chelly and Grand Gulch.

E- Miscellaneous
EHM/001-C12.D2 #210
386-387 (re film)
388-390

274F — Falls Creek? C. 1939 w/ AE Douglass
Possibly sites 23, 30, 31, and 36

EHM/001 C12.D2 #211 A.T. Erwin
391-395

EHM/001 C12.D2 #212
396-408

EHM/001 –C12. D2 #213 Livingston Farrand
409-450

EHM 001-C12.D2 #214
451-454

EHM/001 C12.D3 #222 Pliny Goddard
454-461

EHM/001 C12.D3 #226
462-492

EHM/001 C12.D3 #230 Emil Haury

493-499

EHM / 001 C12.D3 #233 Junius Henderson
500-524
520... re: Aztec publication

EHM /001 C12. D3 #234 Edgar Hewett
525-565

EHM 001-C12.D3 #235 E.W. Hodge
566-570

EHM 001 C12.D3 # 242 Kidder folder 1
571-628

EHM 001 C12.D3 # 243 Kidder folder 2
629-647

EHM 001 C12.D3 # 246 Kidder folder 5
648-654

EHM 001 C12.D3 # 247 Kidder folder 6
655-656

EHM 001/C12.D3 #254
657-660

EHM 001/ C12.D3#257 Ann Axtel Morris
661-669

EHM 001/C12.D3#258 Dwight Morrow Jr.
670-715

File Cabinet 8
EHM 001/C12.D4#261 Nels Nelson
716-817

EHM 001/C12.D4#263 Jesse Nusbaum
818-829

EHM 001/C12.D4#266 Miscellaneous
0830-840

EHM 001/C12.D4#270

841-861

EHM 001/C12.D4 #273

862-873

EHM 001/C12.D4 #280 Smithsonian

874-919

EHM /001 C12.D4 #281

920-921

EHM /001 C12.D4 #285 Oscar Tatman

922-976

EHM/ 001 C12.D4 #290 Misc. W

977-980

EHM/001 C12.D4 #292 Clark Wissler

981-1050

EHM/001 C12.D4 #293 Clark Wissler folder 2

1051-1127

EHM/001 C12.D4 #294 Clark Wissler folder 3

1128-1169

EHM/001 C12.D4 #295. Frank Wolcott

309-318

EHM/001 C12.D4 #297. J.A. Wulfin

319-345

For Kay (Dept. of Interior folder 1) EHM 001 C12.D2 #204

346-359

EHM/ 001 C12.D4 #290

291-308

Letters in Merriam Folder with respect to reconstruction of the great kiva at Aztec (and funds associated with them). Not scanned. (no archaeological data).

Notable Inclusions:

1. Timeline and Bibliography of Morris's life compiled by Hugo Rodeck & by Joe Ben Wheat, undated.
2. Complete artifact catalog/field catalog (with corrections) and which noted losses in field
3. Unpublished manuscripts on relative dating, Basketmaker to Pueblo transition
4. Internal NPS report of JohnWill Farris' extensive excavation work, details of 8 excavated rooms, several unknown burials, and kivas, as well as unpublished photographs from early late 20s/early 30s, early map, architecture impacted by drainage, etc.
5. Artifacts excavated in 1915 near Aztec and sent to St. Louis Arch Society
6. Narrative of 1923 excavation, unpublished, presumably written by Morris.
7. Diagrams of unpublished rooms and 4 kivas — some with measurements and disposition of artifacts
8. Map of excavations in Mound E and Earl Morris Ruin
9. Description of 5 rooms not in Morris's reports
10. Kiva X-1, X-2, X-3 (possibly located during drainage work in the plaza)
11. Description of 2nd great kiva in court
12. Dozens of popular newspaper clippings.
13. History of Morris house (interiors, original builders, use of materials from ruin)
14. First dendro dates (collected 1918, 1919)
15. Transcript of conversation between Morris and A. E. Douglass at Morris home in 1935.
16. Indications of use of motion picture film — possibly at Aztec was made in 1920s.
17. Work at unnamed sites near Aztec
18. Sweet corn
19. Morris's 1915 research proposal to Livingston Farrand
20. Early plans of work on La Plata/Aztec with Edgar Hewett (also: graduate school)
21. Re-growing beans from Aztec (F.W. Hodge).
22. Photos from Kidder that Show Aztec in 1892 (room interiors and north-central roomblock).
23. New interpretation of quids found in Aztec rooms.
24. Logistics between Morris and Nelson to work at Chaco and early plans to excavate Aztec
25. Nelson alludes to 'M' and 'S' (Morley?) are 'away doing something besides archaeology.' Possibly work at Aztec.
26. Nelson upset about Aztec funded to the detriment of his work.
27. The problem of screening for small finds at Aztec
28. Strategies with Jesse Nusbaum, formulae for reconstruction of the Great Kiva
29. Mistaken burial article in El Palacio (attributes burial found in Canyon del Muerto with having been found at Aztec).
30. Morris set car on fire.
31. Morris tells Judd where to dig in Bonito.
32. Colonel H. F. Yumer. On piece of wall ½ mile north of bridge on Escavada Wash.
33. Morris unimpressed by Hewett's work at Chetro Ketl.

34. 'To excavate the 'Aztec Ruin' is a dream which has endured from my boyhood...'
35. Notes on the early proposal, disposition, and exhibits at CU Museum.
36. Correspondence between NPS and Morris regarding the loss of his papers from Aztec.
37. Details on excavation of Mound E — with burials.
38. 1934. Morris appointment as 'Collaborator-at-Large' with the NPS.
39. Correspondence between Morris and the St. Louis Archaeological Society concerning work in and around Aztec 1915/1916.

Summary of Keywords Assigned to CUMNH Documents

AMNH Library	385
Aerial	8
Artifacts	220
Burial	37
Burials	240
Ceramics	21
Lithics	369
Perishables	68
Plaster	68
Refuse	35
Building Type	
Annex	3
Earl Morris House/Visitor's Center	8
Great Kiva	134
Kiva	188
Notable Architecture: Other	185
Room	423
Room 2+	20
Unknown Kiva	46
Unknown Room	159
Unknown Rooms	48
Unknown Space	63
West Ruin Overview	511
Camera/Video Camera	46
Documents	
Architecture Details (Kiva)	94
Architecture Details (Room)	92
Artifact Inventory/Disposition	268
Bibliography/Timeline	31
Budget/Financial Report	8
Burial details and/or photo	21
Dendro Data	35

Exhibit	16
General Work at Aztec	91
Internal NPS/Dept. Interior	98
Maintenance	17
Map/Diagram	140
Newspaper Clipping	27
Research Proposal/Permission	34
Surrounding Site	34
Unpublished Manuscript/Report	122
Notes (Photo Details)	
Abutment	38
Adobe	22
Doorway	135
Excavation in Progress	530
Hearth	55
Other	5
Post 1930	255
Reconstructed	36
Reconstruction in Progress	122
Road	7
Roof/Floor	90
Wainscoting	6
Other (not Aztec)	
Canyon de Chelly/del Muerto	43
Chaco Canyon	22
Chimney Rock	4
La Plata Valley	21
Mesa Verde	12
Other (unspecified) archaeological site	35
Other Buildings	
Annex	2
Aztec East	15
Hubbard	18
Road	6
Unknown Building (in vicinity)	7
People (Photos)	
A.V. Kidder	1
Ann Morris	26
Dwight Morrow Jr.	1
Earl Morris	43
Lindbergh	1
Neil Judd	1

Oley Owens	11
Sherman Howe	8
Sylvanus Morley	3
Unidentified Tourists	55
Unidentified Workmen	563
Unknown Person(s)	3
Previously Published	101

Process:

1. Scanning

The images were scanned as if they were an archive. Therefore, if the photo was glued to a paper backing, I scanned the entire card. This captured the occasional caption that was written (though this occurred on fewer than 10% of the images). Most of the cards merely said 'Aztec.' In the photos found in the oversized filing cabinet that had 'not been processed' and which had been 'interleaved in a ledger,' a number of the photos had clear descriptions written on the back. These appeared, to me, to be in Morris's own hand. When these captions were present, I scanned them as their own file and added the suffix 'a' to the photos. For example, a photo of the great kiva may be 'Aztec 652' and Morris's description on the back of that photo would be labeled 'Aztec 652a.' This preserves the numbering system and records Morris's original caption in a manner that ties it to the original photo.

2. Ordering

I began in 306 with the gray filing cabinet, and selected drawers from left to right. I then moved to the 'oversized' filing cabinet and scanned folders as they were filed, from front to back. The numbering system is therefore contiguous.

3. Numbering

Every image (including duplicates) was scanned. Based upon the ordering (see above), each was labeled in pencil, on the back upper right hand corner 'AZTEC 001, AZTEC 002, Aztec 003.... ' etc. In cases where the archive contained photos that were not from Aztec Ruins or its surrounds, I 'flagged' the image with a blue post-it note.

4. Preservation

Many of the photos are in good shape. The photos in the filing cabinet (those glued to cards) seem to be in better condition than those in the oversized cabinet. While neither the glue nor the acidic paper is ideal, the photos are not bending. However, those glued to cards exhibit more scratches than those in plastic in the oversize drawers. The photos in plastic sleeves (or not) in the oversize cabinet are in worse shape. This may be due to the fact that they appear to have been culled from a ledger book. These suffer from bending, bent

or broken corners, paperclip rust and minor to moderate scratching. Many of these photos have Morris's handwriting on them.

5. Scanning/Storage

Photos were scanned as high resolution 600 dpi tiffs. These are lossless data files and depending on size of the photo, yielded approximately 3000 x 5000 pixel resolution (approximately 15 MP). File size for each photo is between 17 and 30 megabytes. These large, archival files are currently stored in three places: My laptop, a personal external harddrive, and an external harddrive in the Anthropology department computer lab in Hale.

Observations (possible avenues to pursue either for research or further collections gathering)

1. Elizabeth Morris, Earl Morris's daughter (now deceased) may have had some 10-20 images from Aztec. I found two notes with her annotation inscribed with 'EAM, next 8 images' or 'Next 11 EAM, 11/86.'
2. Some of the photos seem to correspond to one or more photologs of some sort. There are several photos that are glued to a backing which have numbers 1-24 with relatively precise captions. These appear to have been written recently, and are NOT in Morris's hand. I wonder where these descriptions came from, and what the enigmatic numbers mean (15-2) (18-1) etc. I recorded these numbers in case a photolog is located in the future.
3. There are a number of photo sizes in the CUMNH collection. Most are 4x6 inches. A number are 2x3 inches. These smaller photos have a tendency to be more informal snapshots of people climbing the ruins, posing with burials, etc. Most of these small pictures have the number '6' lightly penciled into the corner. This perhaps indicates another photolog, or the efforts of previous collections managers.
4. Most of the photographs are loosely organized (no indication of by whom) into tabs such as 'General View of Clearing Ruin' 'Great Kiva restoration' 'Artifacts' 'Murals and Plaster' and 'Burials.' For the most part, the photos behind these tabs are correctly filed — but not always. From what I can tell, the photos do not correspond to date or location, and probably **do not** represent fidelity to Morris's original ordering.
5. Four photos may not belong to CUMNH. Two are clearly marked 'Taken by and Property of, National Geographic Society.' Two others are stamped 'Photo from W.R. Rowland Camera Store, Durango, CO.' These last two have hand-written 'complimentary' scrawled on the back.

6. Categorization thus far.

Aperture allows me to assign user-generated metadata. The fields I chose include: Version Name (Aztec 001 etc), Caption, Key Words (see below), Title, Date, Pixel Size, File Size, Project Path, Special Instructions, Category, Image Location, and Site Location. Most of these should be self-explanatory. Please see attached for an example view of the interface I am using.

I have catalogued the 819 images scanned thus far. For each type listed below, I 'tagged' these photos. Please note this is preliminary, includes duplicate photos, and does not bear very close analysis (yet) of visible architecture.

Appendix 2: Morris's description (1928) of excavation and contents of the Room 139

When the writer broke through the veneer of masonry which sealed the north side of the door leading into Room 139 from Room 143, the condition of the ceiling dictated a hasty retreat. The supports were of cedar instead of pine. Evidently realizing the brittleness of this kind of wood, the builders spanned the room with two pairs of logs, each pair taking the place of the customary single beam of pine. The cedars had broken at the center and sagged 1½ feet, and splintered again where they were inserted in the west wall. They were in such condition that after the room above had been excavated and the small cottonwood poles, extending the full length of the room, had been removed, the southern pair of beams fell of their own weight. Why the 3½ to 7 feet of debris above them had not crashed its way down into Room 139 is difficult to explain.

On the floor of the room was dry Mesa Verde refuse with a fairly large admixture of vegetable substance, 1 foot deep at the north end and 3½ feet at the south. This refuse was very rich in specimens among which were six black-on-white bowls, an undecorated bowl, a black-on-white dipper, potsherds, human hair, grains and ears of corn, beans, seeds, and pumpkin shells, wrapped and tied bundles of twigs, bundles of splints, yucca and corn leaves, bundles of herbs, rings and chains of yucca strips, prepared fiber, twisted cords, some in bundles and some in hanks and feather-wrapped, braided cord of yucca and cedarbark, twelve pieces of cotton cloth, two cloth sandals, two woven socks, five plaited sandals, a plaited bag, two plaited baskets, plaited rush matting, six plaited pot rests, seven corn leaf pot rests, two cornhusk pot rests, four cedarbark pot rests, two grass pot rests, one bark pot rest, five yucca rings, one cedarbark ring, small rings of cornhusk, two with rings laced with fine yucca mesh, three cornhusk flowers, a yucca hairbrush, a cedarbark brush, a cedarbark torch, three flower-like objects, nine reed arrows, seven pieces of worked wood, three worked sticks, a wooden cylindrical plug, two split sticks, two wooden batons, three heads of ceremonial sticks, feathers and quills, pieces of hide, four pieces of worked antler a sheephorn blade and a ladle of the same material, seven mammal bone awls, two bird bone awls, two bird bone tubes, three miniature unbaked bowls, four small spheres of unbaked clay, an ornament of gilsonite and one of selenite, a piece of worked hematite, two arrow points, a chipped knife blade, three pecking stones, a grooved hammer, a grooved ax, a polishing stone, a rubbing stone, an arrow-straightener, a skinning knife, three pottery disks with edges ground, a drilled potsherd, a pottery bird head, and a yoke-shaped piece of wood (29.0-9388-9639) and contained Burials Nos. 27 and 28, the former that of the individual with the splinted arm. Covering the refuse at the north end were 4 to 8 inches of rat skeletons and nests and at the south a thin layer of dust sifted from above. As previously mentioned, the door in the middle of the north wall had been sealed from the side of Room 143. It is 2 feet 3 inches wide, 4½ feet high, with a sill height of 2 feet. The door comparably situated in the south wall, also sealed, has the same dimensions. In this room there are no ventilator openings, open or sealed. The veneer of the entire east wall has bellied outward and the central third of it fallen (Morris 1928:366-367).

Appendix 3: Morris's description (1924) of Burial 27, the Splinted Skeleton, and Burial 28

AN EXAMPLE OF PREHISTORIC PUEBLO SURGERY.

Various appliances have been exhumed from prehistoric ruins in the Southwest which are supposed to have been splints used by the aborigines in the treatment of different types of fracture. However, while rational probability, strengthened by the presence of these splintlike objects to which hypothetical functions have been assigned, justifies the belief that the ancient Pueblo made attempts at surgery, specific instances which prove indubitably that such was the case are sufficiently rare to merit individual mention.

In consequence we have reserved the presentation of Burial No. 27 for special treatment under this head. On the floor of Room 139 were the remains of a female, 17 to 20 years of age. The body lay facing and adjacent to the east wall, with head about 18 inches distant from the north wall. There was an average of between one and two inches of dust on the floor under the bones. Between the skull and the north wall were three black-on-white bowls (29.0-9634-9636) and back of the body, half way across the room was a mug (29.0-9637). Three layers of wrappings had constituted both shroud and casket. The first wrapping was an excellently woven cotton cloth; the second, a mantle of feather cloth, and the third, a mat of plaited rushes. The flesh and most of the wrappings had disintegrated to a brown mould. A few dried ligaments remained, notably in the region of the feet, which, though skeletonized by decay, were held in perfect position by their tendinous bands of gristly integument.

The skeleton lies upon its back, inclined somewhat toward the left. The knees point to the left and downward from the trunk at an angle of forty-five degrees, the heels having been drawn up close to the buttocks. The left arm is extended along the trunk, with hand palm upward, the phalanges extending beneath the left femur. The right arm is crossed over the abdomen.

In the maxilla the third molars were just piercing the alveolar process; in the mandible they are not visible. Fusion of shaft and epiphyses in the long bones is in no case complete.

There is evidence of injury to the left hip. The superior ramus of the pubis is broken free from the innominatum, the line of separation running through the obturator groove and the extreme edge of the acetabulum. The lower anterior boundary of the obturator foramen, that is, the fused ischial ramus and the inferior ramus of the pubis is broken away as a unit. There was necessarily involved a tearing apart of the symphysis pubis, but the ligaments having decayed, no direct evidence of this remains. The left side of the sacrum is fractured longitudinally in the line of the anterior sacral foramina. The lateral portion was driven backward from and slightly behind the main body of the bone. A transverse break crossed the body of the fourth sacral vertebra, and the lower portion of this vertebra, together with the fifth is tipped forward and upward. There appears also to have been a slight anterior dislocation of the left femur, but this may have resulted from settling of the body as decay progressed.

As part of the injury which crushed the pelvic girdle may be recorded the

fracture of the left forearm. The radius is broken almost at right angle's to the shaft $7/8$ inch from the wrist. The shaft of the ulna is broken obliquely from front to back $2 \frac{1}{2}$ inches from the distal extremity. There is marked posterior displacement, the carpals and freed extremities of ulna and radius lying behind the shafts of these bones. The overlapping is approximately 2 inches, which is sufficient to bring the end of the shaft of the radius in contact with the proximal extremities of the metacarpals. The thumb is folded inward, and lies between the first and second fingers.

At least six splints surrounded the broken arm. The top two of these were removed to give a better view of the region beneath before photographing (Fig 27). After the burial arrived at the museum, the splints were carefully removed and found to be six in number. All were intact save one, Fig 29. They range in length from 17.6 to 12.3 cm. Their relative lengths are indicated in the figure. One face is rounded, seemingly the natural surface of the small trunk from which they were cut, but of special interest are the marginal grooves observed in Fig 30. These occur on two of the splints, while two others are marked, each with a single median groove. The remaining pair are not grooved. It should be noted, however, that one of the splints is not complete and that three of them have been gnawed by rodents, all of which, with their decayed condition, renders all such determinations somewhat uncertain. As the splints lay they extended from the distal extremities of the metacarpals to within 3 inches of the elbow. All bindings which had held them in place were decayed beyond recognition.

From the condition of this skeleton, the conclusion may be drawn that the treatment of the fracture of the pelvis, if it was recognized at all, was beyond the skill of the primitive surgeon. The treatment of the broken arm, however, was within his province. Unfortunately, for us, at least, death resulted before sufficient time had elapsed to permit healing to begin. In consequence, the skill of the surgeon must remain in question since the cause of the overlapping of the bones is by no means certain.

In an ordinary fracture of ulna and radius, the tension of the muscles would not retract the extremities a full two inches. But in a fracture resulting from a fall from a considerable height where the force of impact was received by the palm of the open hand so that the shafts of the bones might be driven out through the flesh, such extreme displacement would not be unexpected. If the accident was of this character, and the bones were left in their present position, they are eloquent of a crude and bungling technique.

There is equal probability that the overlapping took place after death. The body reclined more or less upon the left side when laid away, and in the course of disintegration of the soft parts much of the trunk settled so far to the left that a distance of four to five inches separates the ends of the ribs which articulated with the sternum. As this settling was in progress, there may easily have been a downward thrust upon the bones of the arm which forced them past their extremities, since the hand was weighted down by the pressure of the thigh.

Desirable as it would be to know definitely whether or not there was an attempt to place the ends of the bones in apposition in order that an estimate might be made of the skill of the surgeon, uncertainty in regard to this point does not detract from the major fact established; namely, that in the mind of the Pueblo practitioner there had

arisen the concept of the use of splints in the treatment of fracture, which basic concept is fundamental to so important a part of the technique of the most modern surgeons. (Morris 1924:214-221)

Burial No. 28. Infant, head to south, skeleton disturbed and incomplete, lying in refuse against the east wall, 4 feet from the southeast corner of the room, and 16 inches above the floor. There were no accompanying objects, nor traces of wrappings. (Morris 1924:167)

Appendix 4: Additional burial remains discovered by those other than Morris

In addition to Morris's 1924 monograph, data on burials at Aztec have been gathered from the sources discussed in Chapter 5. With the exception of Richert (1964) and Vivian (1959), these reports exist only in grey literature on file at Aztec Ruins National Monument and with other government agencies. The data are ordered chronologically (when specific dates are known) by the individual responsible for the excavation of the remains. Room numbers, Kiva letters or other appropriate provenience data are underlined. In some cases there is disparity between room numbers used by the National Park Service and room numbers used by the original excavator. This disparity is noted in parenthesis, and when possible, all room numbers are correlated with the 1956 base map (**Fig 1.2**), which is most commonly used amongst researchers in Aztec West.

Oscar Tatman

Room 249 (Morris Room 203).

Tatman, who served as a tour guide during Morris's long absences on other projects in the early 1920s, apparently discovered a burial in this room that was overlooked by other excavators. This may indicate it was located under the room floor. The burial was described (secondarily) by the Listers as a child, indeterminate disposition, on the floor with feather cloth and plaited rush matting. No known photos exist (Lister and Lister 1990:122).

George L. Boundey

George Boundey was the site custodian at Aztec Ruins from 1927-1929. During his tenure he cleared at least 13 rooms in the northwest corner of Aztec West and excavated at least seven burials in order to prepare the rooms to become the visitor's museum. Reconstructing the provenience and disposition of these burials, however, is not straightforward, and some explanation of the history of research in this area of the site is needed to show their context. One of these rooms, 177-2/197 had been excavated by Morris in 1916 and assigned room number XXV-2. Some rudimentary notes (AMNH123) were handwritten by Morris and indicate that only the east side of the room had been excavated (the west side had collapsed). This room may have had burials associated with it, but Morris's notes are unclear. The room was left open until 1927, when Boundey finished the excavation. This was the only room he cleared that did not have an intact roof. At least four of the other rooms that were excavated by Boundey had been pot-hunted 40 years before, including Rooms 198, 199, 200, 201 (the numbers Morris assigned to the rooms). Boundey introduced a slightly different system (derived we know not whence) and called these rooms 196, 197, 200 and 201 respectively. I have matched Morris's and Boundey's room numbers by counting 'over and down' from Room 177-2/197 (as described in their records) and have verified the numbers whenever possible by matching diagnostic artifacts and floor features

recorded for the various rooms. I am confident about the room numbers identified in the map included here.

Morris included room descriptions derived from Boundey's work in his 1928 *Notes on Excavation of the Aztec Ruins*, in which he described the last recorded burial — an adult female (Burial #145) — in Room 201. Morris also mentions two children found in the refuse, but that is the extent of his description of burials found within the rooms excavated by his colleague. Boundey's work was completed sometime in the Fall of 1927 or Spring of 1928 — perhaps too late to include a more thorough inclusion of his findings by the publication date. This highlights a problem, for while Morris mentioned a single adult and two children, Boundey recorded at least nine burials in his notebook, both from rooms that Morris attributes to Boundey's excavation (Morris's rooms 198-201 inclusive) and from an additional nine rooms that neither Morris nor Boundey published but which were sketched and described in Boundey's unpublished field notebook. These burials were indicated by line drawings on maps and brief descriptions along with an index of associated artifacts.

Boundey had access to a camera during his tenure, as demonstrated by a dozen or more photographs he took around Aztec that have been found on file at the Park (AZRU 1446, AZRU 1448 etc.). Several of these have questionable attribution, however, as captions credit them to "Boundey 1933" — four years after he had been transferred. All of the Boundey photographs are on file at Aztec National Park; none are found at either CUMNH or AMNH with Morris's papers. This indicates that it is likely Morris never saw them, as few of his papers and published materials ended up in possession of the National Park Service, which had jurisdiction over the Park and its site stewards after the bulk of Morris's work was complete. The photos do provide us now with important new evidence to re-analyze the burials at Aztec, however.

Room 206 (Boundey Room 202-2)

There are three photographs attributed to Boundey that show human remains likely found in the northwest corner of Aztec West (AZRU 1447, AZRU 1523, and AZRU 1527). When these photographs are compared with Boundey's field notebook (Aztec_Notebook_01-34), there is a high probability that at least two of the images are of the child bundle burials he found in Boundey's Room 202-2 in the fall of 1927. Bundle burials seem to be a moniker used by some of the earliest excavators to describe inhumations that were completely encased — head to foot — by wrappings which were then tied on the exterior. They were mostly commonly used to describe infant burials, but several adults were interred in this manner. By cross-referencing Boundey's plan with Morris's 1923 map, we can see these burials are from Morris's Room 206. The fact that Boundey called the room 202-2 indicates that it may have been a second story, or that the number included contents from the second story (a '-2' was a convention Morris had adopted to indicate an intact 2nd story deposit, usually found atop a preserved 1st story roof). In this case, it seems unlikely that the room could have preserved an intact 2nd story deposit, as the 3rd story roof was gone and the 2nd story room walls were less than half of their original height. This degree of collapse would not have been conducive to preservation of the types of perishable items found within in

the room. Photographs also indicate the collapse of the 2nd story in this part of the site. The artifacts from this room may have been grouped with those found during the excavation of the 2nd story room, but there is no indication of this. It is quite possible that the '-2' in Boundey's notebook is either a typo or a simple mistake. For now it seems most likely that these child bundle burials were discovered on the ground floor of Room 206.

A close examination of the photos shows the first bundle burial (Boundey's #1) was located in the northeast corner of the room and associated with (in Boundey's terms): a "flat bottom mug, cup-decorated, dipper, dipper, folded matting, reed mat, braided ring, and a pendant" (Boundey 1927, 18-19). It is likely that either photograph AZRU1447 or AZRU1527 corresponds with this burial. Each shows an infant or child-sized burial bundle, each was labeled as having been taken by Boundey (no other information given), each has a reed mat. AZRU 1447 has an associated braided ring, but the location of the walls is incorrect (unless the photo has been reversed, which is possible). No material culture is visible in the photo, but the bundle may contain or obscure the grave goods. Photo AZRU 1527 is also a possible candidate: it is of a reed-mat, child or infant-sized burial bundle with a clearly associated (but broken) flat-bottomed mug, and either two small bowls, or possibly two dippers ("ladles" in modern terminology) with their handles broken off. The photo appears somewhat staged, with pieces of the broken vessels cleaned and re-stacked (presumably near their original location).

In neither photograph can the skeleton be seen, and no diagnostic artifacts are visible. Consequently, the best data for these two burials come from Boundey's notebook. However, should these artifacts be found and cross-referenced, a more positive attribution might be made.

The second bundle burial (Boundey's #10 — he labeled all finds, both human and artifactual, sequentially), found in the southeast corner of the room, is described as being associated with "2 baskets-nested, bottom basket small, stone ax, bone awl, board from cradle, peck [of] corn cobs, one with kernels, 2 baskets nested, bottom basket large" (Boundey 1927, 18-19). This burial strongly correlates with photograph AZRU 1523, which is the approximate size of a child bundle, is correctly associated and oriented with the room walls, and has two baskets and an axe in the approximate location that Boundey sketched them. This photograph was analyzed by Paul Sandberg, biological anthropologist, who confirmed the age as "child or adolescent" (Sandberg 2014, unpublished report in author's possession). Beyond this, there are no diagnostic objects or skeletal material capable of analysis in the photograph. Included with the list of artifacts and sketch map, Boundey provided a narrative interpretation of the room (original spelling and grammar preserved):

After ceiling had collapsed three poles had remained along East side of room. Room had entirely filled with dirt which supported the 3 poles from below. On pile of husks and refuse the bodies had been placed. Under 10 was about a peck [approximately 9 liters] of corn cobs and one cob contained red kernels. Pendant dropped from burial when it was lifted onto a board. Fragments of adult skull and a few fragments of leg bones were found in Room 201. These were above

floor and had either washed in or had fallen from upper rooms (Boundey 1927: 18-19).

According to this description, then, it would appear [?] that there were at least three burials associated with this room and the room immediately above. This is problematic, for Morris indicated in his 1928 publication that Room 206's ceiling was (as it is today), perfectly intact. This discrepancy between description and evidence calls to question Boundey's interpretation, if this is indeed Morris's Room 206 — as both map and contents seem to indicate. Boundey's reliability as an observer and recorder of information is a concern that will be explored more fully in the upcoming section on context.

Room 201 (Boundey Room 199)

Room 201 contained the burial of a young woman sprawled on the floor. This burial, dug by Boundey was described by Morris (#145) in his 1928 publication:

With Head [sic] to the north, parallel to and a short distance from the central portion of the west wall, lay Burial No. 145, that of a young adult female, sprawled out on the right side. There had been an inner wrapping of feather cloth and an outer one of plaited rush matting. By the right knee was a corrugated pot, in front of the breast a Mesa Verde bowl, headward of this a small cylindrical coiled basket, badly decayed; by the crown of the head a bowl-shaped coiled basket 10 inches in diameter, footward of this a pot ring, and back of the right knee a shallow coiled basket, 16 inches in diameter. Obviously, this Mesa Verde burial was intrusive in a deposit of Chaco age, as indicated by the sherds there from, and by the presence of twined woven sandals, which ceased to be made before the Mesa Verde period. The skulls of two children were also found among the rubbish (Morris 1928: 411-412).

In this instance, both Morris's terminology of “sprawled” and Boundey's detailed drawing of the young woman are evocative. This is the only burial that was described in this manner at Aztec by Morris. Vivian used the word “sprawled” to describe two burials in the Hubbard Mound, found in 1959, but this is the only exception to a general trend of orderly, flexed or supine burials purposely placed with the Aztec great house. The drawing indicates that the lower jaw, presumably from the adult woman and not from the skulls of the two children, had been removed and placed near the left hand. The skull of a child was found against the opposite (east central) wall of the room. If the associated artifacts are considered grave goods rather than primary refuse, this is indeed an unusual burial.

Room 205 (Boundey Room 198)

Morris does not mention Boundey's work in Room 198— possibly because he was not authorized to work in rooms not directly meant for use as the site museum. Room 199 is located one row of rooms south of the back (north) wall of Aztec West, and

consequently was not on the visitor's trail or slated to become part of the on-site museum. Boundey's Room 199 sketch-map shows a person of indeterminate sex and age lying on his or her right side with their back parallel to the west wall of the room and the head to the south. Boundey describes the associated artifacts as: "Two bowls, mug, Bow, carved stick, beads, shell beads, pendant-turquoise inlay, 2 Pendant Bead inserted, 1 turquoise pendant, 1 lip stick" (Boundey 1927: 06). This last is a puzzler, but may have been a ground, cylindrical stick of hematite that would have smeared reddish pigment when rubbed. No artifacts from this burial are found at the AMNH, but they may be at the Aztec Ruins National Park (this suggestion remains to be verified). Boundey describes the disposition of the room:

On bottom floor a layer of animal and bird bones ashes corn husks. Many fragments of incomplete bowls, principally of Chaco people. Above ceiling of first floor room which had fallen were several manos and two metates, axes. The ceiling above second story room entirely burned away: only ashes and charcoal remained. Bottom floor in which burial was made composed of gravel and round boulders very much like old river bed. The body was buried in ground which had evidently been filled in later (Boundey Notebook 1927:06-07).

There are no photographs known of this burial.

Room 207 (Boundey Room 203)

The final room Boundey documented that contained burials was one of the least well-recorded or sketched. In Room 207, the roof of which had collapsed, he found fragmented human remains in the northeast corner and against the east wall as well as more complete portions of human remains in the extreme southwest corner of the room. He does not detail their disposition or completeness, though from the sketch we may assume the remains in the southwest corner consisted of at least a partial cranium. There are no photographs of this room, and Morris does not mention these burials (or room). Boundey's complete description of the burial:

Both child burials had been on second floor but a very large section of upper wall had fallen and completely wrecked the lower ceiling. Bones were scattered over several feet of space. Many broken pots of both Chaco and Mesa Verde make. All but three of bone awls were in debris above bottom floor. Eleven manos above bottom floor and two metates. Fragments of matting and feather cloth were probably from burial but scattered (Boundey 1927: 13).

There are several possible explanations for the discrepancy in what Boundey found and recorded (at least nine burials in four rooms), and those that Morris chose to report in his final publication (three burials in one room, only one of which was given a burial number). Morris was away in the Yucatan when Boundey did much of his work. Morris sent him instructions via letter, which went largely unheeded. Boundey's tenure at Aztec was rocky and his relationship with Morris strained. Indeed, Boundey was both

hired to and transferred from the Ruins in fewer than 18 months. These issues, as well as Morris's pressing publication date and Boundey's minimalist approach to record-keeping overall, may account for the discrepancies in the details he logged compared to the extremely abbreviated version of the burials that was eventually published by Morris.

Lister and Lister describe Boundey as out of his depth when it came to any sort of work at Aztec:

When Boundey reported for duty in April 1927, he was not qualified or able to carry out three of the four activities listed in the newly defined custodian job description [administration, excavation and repair, museum-development, and tour guide]. He was familiar with the necessary administrative duties, but he was not sufficiently educated about the Anasazi to be an effective guide nor did he understand the demands of the kind for necessary ruin repair. There was neither museum nor specimens, the preparation of which was another of his outlined duties. These facets of the custodian's job at Aztec Ruin caused Boundey difficulties and plunged his administration into turmoil. Eventually, it was his solution to the museum problem and his paranoid behavior arising from imagined wrongs committed by Morris and the American Museum that resulted in his transfer in October 1929.... His administration was the most tumultuous in the recent history of Aztec Ruin (1990:89).

Despite these issues, a wealth of information may still be taken from Boundey's sketch-maps, notes and photographs. This is particularly true when they are cross-referenced with one another and with Morris's notes and subsequent archaeological work. I have added Boundey's records to the compendium of new burial data for Aztec West.

Charles Steen

Charles "Charlie" Steen oversaw the excavation of three rooms that were, like Boundey's, also located in the northwest quadrant of Aztec West. As far as records show, Steen was not an experienced archaeologist, and his report alludes to the fact that neither the regional archaeologist (Reed), nor the archaeologist from Aztec (Vivian), were available for the task. This report, *The Excavation of Two Rooms in the Northwest Corner of Aztec Ruin* (1938) is mistitled, as the rooms excavated were three in number. His work was meant to modify the visitor's trail through the site and provide safer, ground-level access (no ladders — upon which visitors broke their ankles) through the northwest portion of the site. The rationale is outlined in Steen (1938:1-2). The final report, on file with Aztec Ruins, has not been published. Steen was not present for the entirety of the excavation, but the workmen he oversaw encountered eight burials during the work, and he took photographs of three of them (two with additional close-ups). He also found "numerous isolated bones throughout the fill," a discovery upon which he did not elaborate (Steen 1938:18). These scattered remains have not been

included in the compendium. It is notable that he did not excavate the rooms to the floor, but left between one and two feet of fill in place (Steen 1938:10). The remains found in the rooms have since been repatriated. Steen numbered the burials based upon their order of discovery. Although I have retained his numbers, the description below re-orders them by room association. When burials were found in the doorways between two rooms, I have arbitrarily included them with the lower numbered room.

Room 202

A portion of this room had been cleared before Steen arrived on site. He estimated three feet of upper fill had been hauled away by the workmen already, without assessment for archaeological data. None of the burials from this room were photographed *in situ*.

Steen Burial #2: "Bones, badly decomposed, of an adult who had been buried in the doorway between Rooms 202 and 203. A portion of the wall had fallen on the burial and the bones were crushed. No artifacts" (Steen 1938:17).

In this context it must be noted that burials in doorways were a relatively uncommon phenomenon at Aztec. An infant (Steen Burial #6, see below) was buried in this same doorway. Based upon records, doorway burials occurred only three other times, and two of those, found in Room 110/111 (Burial 25) and Room 180 (Burial 97), were in disturbed contexts. The only other purposeful doorway burial in Aztec West was in the east T-shaped doorway in Room 185 (Burial 124). This was of a flexed adult found high up in the refuse that filled the door.

Steen Burial # 3. "The right parietal and a portion of the frontal bones of a child found just under the fallen roofing material and just above the floor near the center of Room 202. In all probability these were not in the original burial place" (Steen 1938:17). This assessment may indicate that this was a secondary burial, but as the burial was found relatively high in the fill (the 3rd found during excavation), it is likely that these remains had been in the second story of the unnamed room above Room 202.

Steen Burial #6. "An infant burial, two feet below the top of the doorway between Room 202 and 203. The bones were in a very poor state of preservation" (Steen 1938:17). It is unclear if this infant was associated with the adult Burial #2 which was also found in the doorway. No additional data are available.

Room 203

Steen Burial #1. "A few badly decomposed bones of a child found in Room 203, level 2. No artifacts were found with the bones" (Steen 1938:17).

Steen Burial #4. "The decomposed and crushed bones of a child found near the top of the fill in the northwest corner of Room 203. A few sherds and bone beads were found scattered around the body but there is no assurance that they were mortuary offerings" (Steen 1938:17). Analysis of the photograph by Sandberg indicates it was the partially articulated and fragmentary skeleton of a child that included a fragmentary post-cranial skeleton and a fractured cranium. Its age was determined by the long bone diaphyses visible with unfused epiphyses. No pathology was determined.

Steen Burial #5. "Two feet below the top of the fill in Room 203 and in the

northwest corner of the room was the skeleton of a child. The body lay on its right side with the legs slightly flexed. At the head were two Mesa Verde B/w vessels, a bowl and a small bird effigy vessel, a bone awl and fragments of a corrugated vessel” (Steen 1938:17). The two photographs taken of this burial focus on the artifacts, rather than the burial. They were taken at two different times, based upon length of shadow (Steen did not use artificial lighting in his photos) and the fact that the vessels in the photograph were clearly moved between takes. Of all the burials Steen found, #5 had the most numerous and complete pottery vessels, and he clearly wished to highlight these finds. The one bowl pictured (its current location is not known) shows clear Mesa Verde style indicators, in addition to a linear motif on the exterior, found most commonly after 1240 (Robinson 2005).

Steen Burial #8. “The last burial found was that of another child and lay in the corner as Burial 5, and about two feet beneath it. The bones had been disturbed; likely by rodents. A single Mesa Verde B/w bowl was found at the head of the skeleton” (Steen:1938:17). The single photograph of this burial indicates that the burial was relatively intact, at least partially articulated, and even with some evidence of burial wrappings still intact, so it is unclear why Steen would think it disturbed — although he may have re-assembled the remains for the photographs. This is suggested by the fact that in the photograph the legs appear to be flexed and the cranium rests on top of the Mesa Verde bowl, which is slightly unusual.

Room 204

Steen Burial #7. “A fairly well preserved skeleton of a child buried near the top of the fill in Room 204. The body had been placed on the right side with the legs slightly flexed. No artifacts were found with this burial” (Steen 1938:17). Later, Steen goes on to report that “In addition, numerous isolated bones were found scattered” (Steen 1938:17), though he does not indicate their location, approximate age or where in the fill they were found. No other data are available for these burials.

Boundey and Steen, and the Northwest Quadrant of Aztec West

Boundey and Steen both worked in the thoroughly excavated/pot-hunted northwest quadrant of Aztec West. The quadrant produced the largest number of burials across the whole site (and indeed the largest number found in any excavated great house in the Southwest).

The seventeen individual burials found by Boundey and Steen (as opposed to the remains of several other individuals that were classified only as “scattered”) were interred in the dark, airless, storage rooms of the great house. These rooms were located in the 1st and possibly 2nd story — in an area of the site that saw massive numbers of inhumations. The excavated Northwest quadrant of Aztec was previously thought to contain 58 individuals (Morris 1924); it now seems clear there are 75 — that is to say, new analysis demonstrates a 23% increase over previous estimates. In most cases the data on orientation, grave goods and intra-room provenience are reconstructable. Notable burials include a child buried with turquoise, a relatively rare

commodity at Aztec, and the inconsiderate, sprawled burial of an adult woman — the only one of its kind in Aztec West.

Chester R. Markley

Nine burials were discovered in 1933/1934. They were found during repair work on Aztec Ruins that was funded by the WPA and was primarily geared toward overburden removal, preparing the Great Kiva for reconstruction, and preparing to place a massive drain in the plaza (near Kiva E) that would run southeast and deposit excess water off-site. The report that described the burials was prepared by Chester R. Markley, who wrote the report and may have taken the photographs (the contents of which are summarized below). The brief memo introducing the report, which credits Markley with its authorship, also alludes to the fact that Oscar Tatman, long-time employee of Morris during the original excavation, oversaw the project. Markley's superintendent, E.P. Leavitt, noted that he thought this report excellent and praised Markley for his neatness and thoroughness, stating also that the methods used were as accurate as any known. Markley noted specifically that he submitted photographs in lieu of sketches, though there is an (obscurely) annotated map at the end of the report. In his report, he made mention that it was not his intention to conduct any excavation, but rather to see to the business of the landscape and drains. “We wish to again impress on those interested that this particular work is by no means excavation and these finds are purely accidental although treated with the same care that could accompany excavation of the most technical nature” (CUMNHARCHIVES_069). This may account for the minimalist recording of the archaeological data encountered.

At the time Markley's final report was written (December 1934), conventional wisdom was that Boundey had only excavated five rooms in the northwest corner of Aztec West (Markley 1934:2). This small point is mentioned to highlight the potential problems with Markley's writeup, since it is clear Boundey had excavated at least 13 rooms. It is intriguing that Markley's report was written only five years after Boundey's departure and indicates how poorly recording and legacy data were preserved on-site or passed between archaeologists during this period of stewardship.

During the course of the project, the crew uncovered ten burials: five in Southeast Refuse Mound, four in an unknown room (though with a high probability of being in the SW quadrant); and one burial in refuse near a roomblock outside the northwest corner of Aztec West. In general, it is possible to place (roughly) the location of the northwest and southeast refuse burials because Markley annotated a map with sketches which shows the likely location of these burials. Moderately good provenience (floor, subfloor, corner association etc.) is given for the burials in the room, but at this point it is difficult to determine exactly which room it was being excavated. Markley indicates only that it was “about 15 feet west of the diagonal doorway.” Earlier in the report he alluded to a diagonal doorway between Rooms 151 and 190, which *may* indicate these burials are found in one of these two rooms, though later letters indicate these were mislabeled as being found in Room 190 (which is found in the plaza, and

may have actually been encountered when they put the drain in — but the evidence is inadequate to be certain).

Refuse Northwest of Northwest Roomblock

Probably just north of a small two-room block northwest of the northwest corner of Aztec west. Adult, left side, flexed with large bowl MV bowl near face, MV mug and corrugated jar. Sandberg did analysis of this burial. Photo Markley 1938:10 A skeleton was found in the refuse about two feet west from the north west corner of the north room. The flexed skeleton was lying on the left side with head to the north. Near the face of the skull was a large bowl No. AR-1652, decorated black on white, both inside and outside. In the bowl was a large Mesa Verde Mug, No AR-1607, and a small corrugated jar No. AR-1608, with rim broken off (CUMNHARCHIVES_053).

Two photographs in Markley's report purport to show the area where the skeleton was recovered (though its current location is unknown). The first, at the top of the page (photograph #7 in the report, CUMNH_ARCHIVES074), appears to be taken atop the roomblock facing the Southeast. In the distance (less than 20 m) is the northwest corner of Aztec West with the doorway to the museum (still in use to access that portion of the site). The second photo (CUMNH_ARCHIVES75) shows the same roomblock, but with a view in the opposite direction — to the northwest. In both cases, the principle object in the view is the portion of a 2 room pueblo with only the base of the walls — perhaps one or two courses of masonry — standing. The building appears to be oriented mostly east/west, and its alignment is in keeping with the Annex rather than with Aztec West. There are no visible artifacts in view, but purportedly, the skeleton was encountered toward the northwest of this roomblock, which is best seen in the second photograph.

An additional photograph did not make it into the report (on file at Aztec Ruins, though unattributed and unlabeled, AZRU204) but shows the same burial from a slightly different angle.

Room 150

The number assigned (150) assigned by Markey does not correspond to any known room number in Aztec and does not correspond to Markey's own map of excavations. It is very likely a mistake — It may be a different, unlabeled room in the plaza on the *east* side of Kiva E, or these four burials may be in the refuse mound somewhere (CUMNH_ARCHIVES056). The location of these burials cannot be determined, but they are likely in the extreme southwest quadrant and in some proximity to Room 150.

Markley: Burial 1 (2 individuals). No. 173 Burial No. 1.

“About 15 feet west of the diagonal doorway, beside the north wall, and 18 inches above the floor, was found the skeleton of an adult lying on the right side with head toward the east. Body was flexed and the skeleton badly decomposed. To the left, or south side, of the skull were two large decorated bowls, No. AR-1601, NO AR-1668.”

Markley Burial 2 (1 individual) No. 111: Burial No. 2.

"In the northeast corner of the room was found the skeleton of a child lying face up and body at full length, with head toward the east. On the right of the skull was a large Mesa Verde mug, No. AR-1606, and a small corrugated jar, No. AR-1500. Both were covered with large sherds. Encircling the left arm was a bracelet of shells. The bottom of the grave was 10 inches below floor level (see picture No. 111)"

Markley Burial 3 (1 individual).

"Midway along the eastern wall and lying on the floor with the head to the south, was the skeleton of infant. No pottery or other specimens were found with this burial."

Markley Burial 4 (1 individual).

"In the extreme southeast corner and lying on the floor with head to east was the skeleton of an infant. A small, globular, smooth cook pot, No. AR-1604 was found at left side."

Southeast Refuse Mound

Five burials, no sex or age specified (see map for approximate location in Southeast refuse mound, cut by drainage ditch).

Markley 169: Flexed, left side, no known vertical, head to south and left arm under skull. Large decorated bowl at head, small B/w bowl (AR-1646) (AR-1645). Pitcher with effigy handle, photo Markley 169.

Markley 170: Skeleton lying on right side with head to the north, body flexed, At the back of the skull was one red bowl (AR-1665) also tall B/w pitcher (AR-1665), photo Markley 170.

Markley 171: Badly decomposed skeletons (two) B/w bowl (AR 1663).

Markley 172: Skeleton in good condition, left side, head to south, bowl (AR-1671), another bowl near pelvis (AR 1672).

Sherman Howe

Sherman Howe published his account of Aztec, *My Story of the Aztec Ruins*, in 1947 (reissued 1955). He is probably responsible for a single photograph from somewhere northeast of Abrams Farm (AZRU 173, AZRUunknown064) that was approximately 100 yards NW of Aztec West. This photo shows a fully articulated skeleton of an adult male (sexed based upon robust mandible, mental eminence, and robusticity of brow ridges and post-cranial features) in flexed position on his right side. No pathologies are evident. A complete Mesa Verde B/w bowl is adjacent to his forehead.

Gordon Vivian

An extensive excavation project was carried out at what is now known as the Hubbard Tri-Wall structure (just north and slightly west of Aztec West) in 1953/1954. Park archaeologist T.B. Onstott cleared and trenched the structure, which had been significantly impacted by local farmers. Several of the rooms had been converted to a

root cellar. Onstott unfortunately left the Park Service before he published a report. The project was completed and published by Gordon Vivian (1959), who identified (or perhaps reconstructed from Onstott's notes) 12 burials in the tri-wall. Two burial photographs were taken, though there seems to be some disparity between burial tables and narrative description. Vivian excavated six burials from the associated refuse mound, two from Room 4, two from Kiva 3 (the original, earliest structure, atop which the tri-wall was built), and two individuals were found in the roof fall of room 16. Four additional burials were mentioned in Vivian's text, but not included in his table of human remains.

James C. Maxon

Maxon excavated a portion of the Southeast refuse mound during May-August of 1960 in preparation for its removal by the National Park Service. This mound was originally described by Morris as being 125' x 55' x 8' tall. The remaining mound Maxon excavated was 30' in diameter and 4' high, so significant erosion or other depredation had occurred in the intervening years. He trenched the central portion with a 3' wide excavation that was approximately 27' long. The Southwest refuse mound, which had been excavated by Morris and Nelson in 1916 and Markley in 1934, had revealed nine burials. Maxon's interpretation of the southeast mound was that it dated to the later 'Mesa Verde' period (with the exception of the lower levels on the east side). This explained, in Maxon's views, the absence of formal architecture associated with the mound. Maxon recorded from his work that "the only human bone found was a partial patella" (Maxon 1963:4). He did not record vertical or horizontal provenience of this patella within the mound. It was not recorded as a burial at the time, but has been included here as it may illustrate possible differences in mortuary practice between the southeast and southwest refuse mounds.

Roland Richert

Park Superintendent Richert investigated East Ruin in 1964 — the first time it had been examined in an official capacity since Morris's era. Richert was intent upon stabilizing a number of rooms in order to open the area to the public. A series of eight rooms with intact roofs had been breached, probably by pothunters and explorers, prior to the Park's establishment and had been looted to various degrees. Consequently, it is unknown if there were any burials associated with these rooms. Richert cleared the eight rooms, and removed the overburden from the 2nd story above them to reduce the weight on the prehistoric roofs. He also partially cleared a kiva. In all, 14 rooms and a kiva were recorded (Richert 1964:1). Richert did not record any formal burials, but he noted that "fragments of two twilled rush mats were recovered, one from upper Room 12 and the other from upper Room 14. Mats were one of the usual ceremonies [waxed cloth for wrapping a corpse] in burials at Aztec" (Richert 1964:14). So, while there are indications that Aztec East was also used — at least in part — as a burial space, there is not enough evidence to include the possible burials or the rooms of Aztec East in this

chapter.

Peter McKenna

In 1988, Peter McKenna, National Park Service archaeologist, realized a fundamental problem with the publication of Aztec's mortuary data. McKenna never excavated human remains at Aztec; instead, he thoroughly excavated the historical documents. While Aztec had been written about extensively since the Morris era, very few interpretations of new demographic data had been written, and no new synthesis had been attempted. Various elements had contributed to this, including the difficulty in interpreting Morris's data, restrictions on analysis mandated by NAGPRA, and the difficulty in locating excavated human remains. Part of the inaccessibility of human remains was due to the loss of much of the skeletal material since excavation, and part to the fact that the remainder had been scattered into repositories across the country (AMNH, CUMNH, AZRU, WACC). As is clear from the description above, since Morris's time most work at Aztec that encountered burials had consisted of small projects that targeted a few rooms (for example to make room for museum space), excavated drainage ditches, salvaged burials from flood damage, or identified burials in bulldozer cuts for roads. The result had been piece-meal accumulation of burial data in unpublished government reports, gray literature, or oral history that added several burials to the larger corpus of data but did not combine them, identify spatial or distributional patterns, or re-assess Morris's interpretation.

McKenna thus attempted to write a new synthetic study of Morris's work as an appendix to a larger report that included an outline of the issues of recording listed above. McKenna did not have access to the letters, photos, journals and accession forms that have since been compiled from different repositories and that provide the information for this dissertation. McKenna identified 47 individual burials to add to Morris's, few of which have much in the way of associated descriptions. McKenna's work was the first and only known attempt to interpret Morris's burial data and to question the degree to which it was systematized. Thanks to his study (which forms the basis for much of the description included in this chapter so far), we have a very good synthesis of Morris's sometimes uneven treatment of the burials at Aztec, and a clear and concise summary of his findings.

Robert Hill Lister and Florence Cline Lister

In their comprehensive work of 1990, *Aztec Ruins National Monument: Administrative History of an Archeological Preserve*, the Listers allude to several cremations discovered in 1927. No attribution is given, but they were possibly found by George Boundey — who was the site's caretaker at the time. The report on these burials has subsequently been lost; but the Listers describe a

...probable funeral pyre. It was in a heap of waste from wall construction dumped along the north side of the East Ruin. The crew dug a test trench through the pile to uncover several thin layers of burned vegetable substance. In the topmost of these layers was charred residue of at least

five burned bodies. Scattered bones lay in the dirt on both sides of the cut. The bodies were placed close together, provided with the usual wrappings and offerings, burned, and then covered with earth. When found, the carbonized mass engulfing the human remains contained quantities of charcoal derived from matting, sandals, cloth, and baskets (Lister and Lister 1990:ch 3).

At least one Mesa Verde B/w mug from this burial found its way to the CU Museum of Natural History (Lister and Lister 1967, entry 49).

A letter on file at Aztec Ruins National Monument (Wissler to George H. Sherwood, September 10, 1927) indicates that Morris asked for funds to explore this area further, since cremation was not commonly practiced. The work of the WPA to level the ground around the area in 1934 ended these plans, as the fill on the north side of both East and West ruin was trenched and removed for both drainage and aesthetics.

Appendix 5: Additional burial remains located in photographs and analyzed by Paul Sandberg

1. 119767

A partially articulated skeleton of an adult (epiphyses not visible but clearly not unfused at knee) of indeterminate sex with possible evidence of cradle-boarding. The individual is partially articulated in flexed position on his/her left side. The cranium is present but blurred in the photograph, postcranial elements present. The ribs, right shoulder girdle and humerus are visible. The pelvis, vertebrae, and extremities are not visible. The skeleton's position is face down, knees flexed, probably buried in a lateral flexed position on the individual's left side. Probable post-mortem damage includes missing proximal femora and distal tibia/fibulae. Sex is indeterminate. There is some indication of cradle-boarding, as the cranial vault appears to have an unusual angle on its posterior aspect.

2. 129286

A partially articulated skeleton of an adult of indeterminate sex, lying in flexed position on his/her left side in the corner of a room structure. There are at least five vessels of likely (but not certain) McElmo/Mesa Verde period. Seven ribs appear in articulation. The right ulna and radius in articulation with the humerus in a flexed position lay on top of the ribs. On the individual's left side are several long bones that appear to be bundled together (left femur, tibia and fibula in flexed position adjacent to the ribs). Lying next to these is the right femur with the proximal end lined up with the distal end of the tibia — fibula pair. The positioning of the thorax and right arm, along with the positioning of the lower limbs, suggest a flexed burial on the individual's left side. No cranium, pelvis, shoulder girdles, or extremities are visible. Sex is indeterminate and there are no clear pathologies.

3. 284422 & 284423

This photo was labeled as “Grave and pots in situ, N.W. of Abram's house.”

Blurry photo — very little in the way of skeletal remains are visible, though two whole vessels of unknown date are visible.

4. AZRU012 (possibly taken by Farris, based on photo mounting)

Partial fragmentary skeleton of a single adult individual of indeterminate sex. Portions of the two femoral shafts and a fragmentary pelvis are present with possible evidence of carnivore damage. Other long bone fragments are scattered around the floor surrounding the individual in ARZU013. These could possibly belong to ARZU012 (same as photograph Aztec480). Two femoral shafts are visible and a partial and fragmentary os coxae (surrounded by woven mats). The femoral head and neck of the right femur are missing, as are the distal thirds of both femurs. The proximal portion of the left femur is obscured from view by the partial os-coxae. Both femorae are lying on their anterior aspects (the lesser trochanters and linea aspera are visible). No other bones are visible. The pelvis fragment preserves the pubis, obturator foramen and the

ischium, but the angle of the bone in the photograph makes sex estimation difficult. The subpubic angle does not appear to be large and there is no obvious subpubic concavity or medial elongation of the body of the pubis. These are male characteristics, but the pubis may be receding from the ischium in the photograph, making this estimation tenuous. Sex is indeterminate and there are no clear pathologies.

In addition to the adult, the photograph shows a partially articulated skeleton of a child approximately 3-5 yrs old. Both femoral shafts, the articulated vertebral column, and ribs are present. What appears to be the cranium is lying in approximate anatomical position adjacent to the vertebral column. The upper limbs are not visible. Sex is indeterminate and there appear to be no distinct pathologies.

5. AZRU031

A fully articulated skeleton of an adult male in flexed position on his left side with evidence of cradle-boarding. There is a ceramic bowl adjacent to the individual's face. Sex is determined by the large mastoid process, large mastoid process, ~90 degree gonial angle. The mandible is robust, the sciatic notch quite narrow, and there is a robust post-cranial skeleton. There is evidence of lambdoidal flattening.

6. AZRU031a

A partially complete articulated skeleton of an adult male in flexed position on his left side with evidence of cradle-boarding (lambdoidal flattening). There is a ceramic bowl adjacent to the individual's face. Portions of the right shoulder girdle, lower right arm, and pelvis are missing. Sex is determined by a large mastoid process, prominent nuchal crest and robust cranium.

7. AZRU154

Commingle remains of at least five individuals, two of whom are juveniles and one of which is an adult female. The juveniles are of indeterminate sex and age. The remains appear to be in a secondary context, are commingled and weathered (they may have spent time on the surface). The individuals represented include at least three intact crania (though no mandibles are visible), an assortment of long bones and fragmentary post-cranial elements. Some are diaphyses with unfused epiphyses, and others appear to be adult size with fused epiphyses. A ceramic fragment is visible towards the bottom of the photograph, and the portion in view appears to be an undiagnostic fragment of a jar. The crania (from left to right) are analyzed as:

Cranium #1: A complete cranium of a juvenile (~7-10 yrs) of indeterminate sex. Diagnostic features indicate deciduous p4 and m1 are present; permanent first molars appear to be fully erupted; no permanent second molars are present, but the right M2 socket is visible, M2 possibly erupted/erupting. There is no evident pathology.

Cranium #2: A complete cranium of a juvenile (~7-10 yrs) of indeterminate sex based upon presence of a left deciduous p4 and m1, and a right permanent M1 that appears to be fully erupted; no evidence of M2s, maxilla appears to be broken. No pathology is evident.

Cranium #3: A partial cranium of an individual of indeterminate sex and age, with no apparent pathology.

Cranium #4: A fragmentary cranial vault of an individual of indeterminate sex and age with no apparent pathology.

Cranium #5: A complete cranium of an adult female. Sex established based upon vertically oriented forehead, a gracile glabella, the superior margin of orbits appears sharp and the moderately sized mastoid. Adult age is based upon permanent dentition through the second molar present and in occlusion. No apparent pathology.

8. AZRU 200

Unknown burial. No data. Remains and grave goods not clearly visible.

9. AZRU 201

Unknown burial. No data. Remains and grave goods not clearly visible.

10. AZRU 204

Unknown burial. No data. Remains and grave goods not clearly visible.

11. AZRU 205

A cranium and presumably post-cranial skeleton of an adult of indeterminate sex lying prone under a woven mat elevated on a platform supported by modern wooden beams. No pathology is evident.

12. AZRU 1612 (Same burial in photographs AZRU1612 and AZRU1609)

This photo is labeled "Burial, human, specimen 1059" but it is unclear to what this number refers. A skull and presumably a partially articulated skeleton of an adult of indeterminate sex lie beneath a woven mat or blanket in flexed position on the individual's left side. There are two complete ceramic vessels adjacent to the individual's face. The burial appears to be placed on a modern mat on a table or in a drawer though is likely *in situ* in one of the rooms converted into the visitor's museum in the northwest corner of Aztec West. The skeleton appears to be partially mummified and probably came from a lower level room with a preserved roof. There is evidence of cradle-boarding and occipital flattening.

13. AZRU5493

This photo is labeled "Funerary offerings found with a Mesa Verde burial, west ruins, AZRU, George Grant, ca. 1930. From Robert Lister files. No Neg."

14. AZRUunknown 074

This photo is labeled "F. 15. A.R. Burial as Found in Ruin. Museum Collection. Grant, 8-5-29." This photo is of a partially articulated skeleton of an adult male (based on robusticity of mandible and ~90 degree gonial angle) flexed beneath a woven mat or blanket in a secondary context. This skeleton may have been incorporated into the

visitor's museum and put on display in the converted rooms in the northwest corner of the site.

15. Aztec 033

This photo is labeled as "No. 14. Skeleton No. XX. 15-2." There is no known association with any of these numbers. This is a skull of an adult male with possible pathological tooth loss. Sex is assessed by well-developed brow ridges and robust mandibular ramus.

16. Aztec 034

This photo is labeled as "No 13. Skeleton No. XI. Note the large chico root grown through the skull. 14-3." There is no known association with any of these numbers. The resolution of the photo allows for no assessment.

17. Aztec 039

This photo is labeled as "No. 11. Pottery w/ skeleton No VIII in situ." The teeth and the cavity within the broken skull may be seen behind the bowl and vase. B-2'

18. Aztec 045

This photo is labeled as "Pottery for St. Louis Society, Aztec 1915."

19. Aztec 546

This photo is labeled as "Pottery with burial No. 16. N. W. 1/4 of Room." It appears possible this photo was taken somewhere in the nearby vicinity.

20. Aztec 549

This photo is labeled as "No 17. Grave 1/4 mile east of main excavations at left are specimens No. 38 and 40. 18-2." This is clearly the skull of an adult male with no visible post-cranial elements. Sex determined by brow ridge development, a strong temporal line and a pronounced mental eminence. No pathologies evident.

21. Aztec 550 This is the same burial as that shown in photograph 119767.

This photo is labeled as "Burial #23." The burial given this number in Morris (1924:162) may correspond to this photograph in general description, but it appears the arms of this skeleton are in the wrong place, and thus it is likely either that this photo is mislabeled or that the number may refer to a different system that has since been lost. The photo is of a partially articulated skeleton of an adult of indeterminate sex with possible evidence of cradle-boarding. The individual is in flexed position on his/her left side with ribs, right shoulder girdle and humerus visible and pelvis, vertebrae, extremities not visible. It is possible this individual was buried face down, knees flexed, probably in a lateral flexed position on the left side. There is damage (probably post-mortem): the proximal femora and distal tibia/fibulae are missing. There is possible evidence of cradle-boarding, and the cranial vault appears to have an unusual angle on its posterior aspect.

22. Aztec 608

This is an articulated skeleton of an adult of indeterminate sex in flexed position on his/her left side. No pathologies are evident and there are two rocks on either side of the skull.

23. Aztec 610

This is a partially articulated skeleton of a sub-adult in prone position with legs flexed. There is an overturned Mesa Verde mug with handle adjacent to the skull. No pathologies are evident.

24. Aztec 613

A skull of indeterminate sex and age with no post-cranial elements visible. Age, sex, and presence of post-cranial elements indeterminate.

25. Aztec 615 & 616 (Same burial in photographs Aztec616 and Aztec898)

These are the disarticulated remains of an adult of indeterminate sex. Long bones and a partial cranium are present. The long bones have fused epiphyses; no pathologies visible.

26. Aztec 618

This is a blurry photo of a partial articulated skeleton of an adult of indeterminate sex. Only the lower limbs and lower arms are visible; there is no evidence of pathology.

Appendix 6: High-Status Burials

Room 41

(Morris 1924a: 300)

Burial No. 16. The number of bodies originally present in Room 41 is uncertain. One adult lay partially flexed on the right side with back to the east wall and feet in the southeast corner. Just west of this skeleton was that of a second adult, apparently parallel to and with face toward the first. Between the center of the room and the southwest corner there were a few fragments of charred flesh and bone, portions of the body of a child. In the northwest corner and along the north wall there were the scattered remains of two more children. Here and there on the western side of the room there were bits of calcined flesh, so that while it can only be positively stated that burial No. 16 contained the bodies of two adults and three children, it is probable that there were more.

About one foot of ashy refuse had accumulated in the chamber previous to its use for sepulture. The ashes were scraped back from the ends and the west wall to within from one to four inches of the floor, and the bodies placed in the resulting depression.

An astonishing quantity and variety of objects accompanied the remains. A large globular vase, the first object found, was resting against the breast of the adult in the southeast corner. When it was raised a mass of olivella shells was visible beneath it. The skeleton had been completely covered from throat to thighs with beads, abalone shell, and mosaic pendants. There was also an olivella shell anklet on the left leg. In the southwest corner there was a veritable heap of pottery vessels, bowls, large and small, mugs, and bird effigies. In one of the latter there were approximately 31000 tiny black disk-shaped beads. A line of vessels was continuous along the west wall. Near the northern end lay 200 quartzite arrowpoints, in a heap as if spilled from some container. A large bowl and vase were adjacent to the west half of the north wall. Charred and broken bird bone tubes, beads, turquoise inlay, and mosaic fragments were scattered everywhere. To recover them the debris was run through screens grading from coarse to fine. The smallest beads were secured by sifting the dust through a milk strainer.

The chart shows the positions in which the numerous objects were found, and a complete list is given below. Judging from conditions observed elsewhere there can be no doubt that textiles, wooden objects, and other perishable artifacts were plentiful among the burial offerings. Had Room 41 been protected from fire and moisture, it would have yielded a close rival to Pepper's unprecedented finds in Pueblo Bonito.

Those who laid the bodies away did not cover them with earth, and they must have remained exposed for some time previous to the conflagration. This is indicated by the fact that a portion of a strand of beads was encrusted

upon the distal end of the shaft of the right femur of the second adult. The flesh of the leg had decayed permitting the beads to settle down upon the bone, and drift sand and rain-washed plaster had accumulated to a sufficient depth to protect the latter from fire.

The intense heat evidenced by the reddened walls and generally charred condition of Room 41 was generated principally by burning corn, fully two hundred bushels of which had been stored in the room above, most of it on the cob, but some evidently shelled. When the partially consumed floor supports gave way, the seething mass was precipitated into the chamber beneath, where lack of draft smothered out the flame before combustion was complete. A layer of carbonized corn, enclosing lumps of wood charcoal and brick-colored chunks of floor earth, covered Burial No. 16 to a depth of 18 inches.

Table 4.4: List of specimens from Burial No. 16 in Room 41. (Morris 1924a:155-161).

Morris FS #	Artifact Description (Morris's classification)
7882	Bowl, black-on-white
7883	Bowl, black-on-white
7884	Bowl, black-on-white
7885	Bowl, black-on-white
7886	Bowl, black-on-white
7887	Bowl, black-on-white
7888	Bowl, black-on-white
7889	Bowl, black-on-white
7890	Bowl, black-on-white
7891	Bowl, black-on-white
7892	Bowl, black-on-white
7893	Bowl, black-on-white
7894	Bowl, black-on-white
7895	Bowl, black-on-white
7896	Bowl, black-on-white
7897	Bowl, black-on-white
7898	Bowl, black-on-white
7899	Bowl, black-on-white
7900	Bowl, black-on-white
7901	Bowl, black-on-white
7902	Bowl, black-on-white
7903	Bowl, three-color Kayenta ware
7904	Dipper, red interior, black pattern, gray exterior, red pattern
7905	Vase with rim and cover flange, black-on-white
7906	Vase with rim and cover flange, black-on-white
7907	Water jar, two handles, black-on-white
7908	Pitcher, black-on-white, handle missing

7909	Pitcher, black-on-white
7910	Mug, black-on-white
7911	Mug, black-on-white
7912	Mug, black-on-white
7913	Mug, black-on-white
7914	Mug, black-on-white
7915	Mug, black-on-white. globular
7916	Vase, globular, black-on-white, bird head in relief on one side
7917	Bird-shaped vessel, head in relief, black-on-white
7918	Bird-shaped vessel, head in relief, black-on-white
7919	Corrugated pot, small
7920	Corrugated pot, small, unbaked, fragmentary
7921	200 quartzite arrowpoints
7922	Hematite paint stick
7923	Cylinder of red pigment, shows impression of cornhusk mould
7924	Cylinder of red pigment, shows impression of coruhusk mould
7925	Necklace of olivella shells, about 400
7926	Necklace of olivella shells, about 400
7927	Anklet of 70 olivella shells
7928	70 olivella shells
7929	Shell beads, conus sp. 33 nearly complete
7930	Shell beads, conus sp. 3 nearly complete
7931	Shells (pelecypod) 6 nearly complete
7932	Large shell pendant (gasteropod) fragmentary
7933	Abalone shell pendant, charred
7934	Abalone shell pendant, charred
7935	Abalone shell pendant, charred
7936	Abalone shell pendant, charred
7937	Abalone shell pendant, charred
7938	Abalone shell pendant, charred
7939	Abalone shell pendant, charred
7940	Fragments of abalone shell pendants
7941	Abalone shell, beads and bone embedded in charred earth
7942	Shell disk pendant
7943	Shell disk pendant, incomplete
7944	Shell disk pendant, incomplete
7945	Shell disk pendant, incomplete
7946	Shell disk, terraced for rings of inlay; inlay fragments adhering to back
7947	Shell disk
7948	2 shell disks and part of mosaic elements which covered them
7949	Worked shell, fragment of mosaic adhering to it

7950	5 worked shells
7951	Inlaid shell, incomplete
7952	172 large disk-shaped beads
7953	11 large cylindrical beads
7954- 7970	Several hundred beads, unsorted
7971	Beads, mosaic fragments, bits of shell and turquoise, unsorted
7972	Flat irregular shaped beads, probably mostly turquoise
7973	Beads, frog-shaped
7974	Spherical pendant of turquoise matrix, incomplete
7975	Rectangular shell bead, fastened to bone backing
7976	Rectangular beads grooved and bone back
7977	Rectangular shell beads and shell fragments
7978	Disk-shaped beads, mostly very small
7979	Beads, bits of turquoise, galena, etc., unsorted
7980	36 figure eight beads
7981	57 feet of tiny black disk beads; about 31000. Buried in 7918
7982	15 feet of tiny pink disk beads, about 8500
7983	Distal end of right femur, beads like No. 1559 encrusted on shaft
7984	39 tubular bone beads
7985	Several hundred mosaic fragments, turquoise, galena, lignite, and stone
7986	Fragments of shell, miscellaneous
7987	Shell conus sp. (?)
7988	10 bird bone tubes found in No. 7916
7989	6 bird bone tubes found in No. 7912
7990	Many bird bone tubes, mostly broken
7991-2	Many bird bone tubes, mostly broken
7993	Jasper drill, fragments of stone and galena, found in No. 7916
7994	Bits of cord, stone, etc., found in 7916
7995	Charred cloth found in 7917
7996	Charred substance, cloth embedded in it, found in 7910
7997	Charred substance, cloth, embedded in it
7998	Galena crystals, bits of stone, etc., found in 7911
7999	Charred walnuts found in 7917
8000	Rectangular stone, polished
8001	Triangular stone, polished

Room 52

Burial No. 14. At a fairly uniform level in the refuse fill 3 ½ feet above the floor of Room 52, the remains of at least fifteen infants and small children

were scattered along the entire length of the east wall. All of the bones except bits of the broken skulls, and now and then a femur or humerus, had completely decayed. Therefore it was impossible to ascertain the positions of the various bodies, or with which of them the respective accompanying objects belonged. Above the burial level there was an average of 9 inches of refuse.

Whatever wrappings may have enveloped the bodies were disintegrated beyond recognition, and with the one exception, hereafter noted, there remained not a trace of the perishable articles which must have formed a portion of the mortuary offerings.

The accompanying chart shows the positions in which the specimens recovered were found. The location of a sack or thin-walled basket 14 inches high, and 9 inches in diameter, with a constricted neck, is marked by Nos. 39-42. The vegetable fiber had decayed, leaving only a brown line of cleavage in the earth. In the bottom of the sack or basket were a great number of small disk-shaped beads (29.0- 7212-7213). These had been strung into an elongated coil about four inches in length, of which the individual strands could be plainly distinguished. On top of the beads lay nine bird bone tubes (29.0-7234a-o) and above these was the skull of a young child (99-7724). The following is a list of the objects found with Burial No. 14.

Table 4.5: List of Specimens from Burial No. 14 in Room 52

Morris's FS #	Artifact Description from Morris's notes.
7188	Bowl, black-on-white,
7189	Bowl, black-on-white
7190	Bowl, black-on-white
7191	Bowl, black-on-white
7192	Bowl, black-on-white
7193	Bowl, black-on-white
7194	Dipper, black-on-white, handle missing
7195	Dipper, black-on-white, handle missing
7196	Dipper, black-on-white, handle missing
7197	Mug, black-on-white
7198a-s	Beads in process of manufacture: 19 pieces of stone, some rounded, two perforated
7199	27 stone beads, same material as 29.0-7198
7200	8 crystal beads, calcite or selenite
7201	64 white disk beads
7202	12 gray disk beads
7203	12 black disk beads, lignite (?)
7204	5 beads, miscellaneous
7205	65 turquoise beads, disk-shaped
7216	Animal effigy of hematite

7206	27 olivella shell beads
7207	Shell bead
7217	Hematite paint stick
7208	5 olivella shell beads
7209	17 shell beads truncated
7210	3 cylindrical stone beads
7214	16 rectangular slabs of bone; backings for beads of fragile materials
2715	Galena crystals
7219	Worked green stone
7218	Piece of hematite
7220	Polished stone
7221	Polished stone
7222	Polished stone
7223	Polished stone
7224	Polished stone
7225	Gray quartzite knife
7212	6 feet of black disk-shaped beads, average 1/25 in. in diameter; about 3100 in strand.
7213	56 feet of black disk-shaped beads, about 1/16 in. in diameter; approximately 16600 in strand.
7211	<i>Not on map (error)</i>
7226a-n	14 bird bone tubes, average length 6 ½ inches
7227a-u	22 bird bone tubes, average length 4 ¾ inches
7228a-z, a3	29 bird bone tubes, average length 4 ½ inches
7229	<i>Not on map (error)</i>
7230a-p	16 bird bone tubes, average length 4 ½ inches
7231a-r	15 bird bone tubes, average length 4 3/8 inches
7232a-y	25 bird bone tubes, average length 4 ¼ inches
7233a-z, a4	30 bird bone tubes, average length 3 ¾ inches
7234a-i	9 bird bone tubes, average length 3 ¾ inches
7235a-o	15 bird bone tubes, average length 3 ¾ inches
7236a-h	8 bird bone tubes, average length 3 ¾ inches
7237a-n	13 bird bone tubes, average length 3 5/8 inches
7238a-m	13 bird bone tubes, average length 3 ½ inches
7239a-y	25 bird bone tubes, average length 3 3/8 inches
7240a-m	13 bird bone tubes, average length 3 3/8 inches
7241a-t	20 bird bone tubes, average length 3 3/8 inches
7242a-f	6 bird bone tubes, average length 2 ½ inches
7243a-g	7 bird bone tubes, average length 1 7/8 inches
7244a-z	100 bird bone tubes, fragmentary
7245a-h	8 wing bones, ends uncut

7246	Worked sandstone slab
7247	Worked sandstone slab
7723	Portions of skull of infant
7724	Portions of skull of infant
7725	Portions of skull of infant

The numerous bone tubes had been done up in bundles, grouped as indicated by the catalogue numbers above, each bundle containing tubes of nearly equal length. Some of the bundles showed traces of a cloth wrapping, and probably all of them had been so enclosed. The covering of two of the bundles had been tinted red or else stained that color during the process of decay (Morris 1924:151-153).

Room 110/111

(Morris 1924a:163-167)

Rooms 110, 111, 112, NORTH WING.

Burial No. 25. Two adults. These bodies had been placed on the uneven surface of a refuse deposit adjacent to the south half of the west wall of Room 111. The refuse was four feet deep beneath the remains, sloping down to 2 ½ feet in the northwest corner, and tailing off to 1½ feet at the east end of the room.

The mortuary offerings accompanying the bodies comprised a wealth and variety of objects; pottery vessels, beads and ornaments, arrowpoints, cloth, sandals, matting, ceremonial sticks, etc., etc. The specimens recovered are given in the following list. Most of the perishable objects were hopelessly decayed, and consequently are not represented in the list. It may be doubted whether all of the vessels enumerated were among the mortuary offerings. The incompleteness of many of them suggests that they may have been thrown into the chamber as refuse at a later date.

Originally the bodies were covered with numbers of plaited rush mats, but not with earth. Prior to their final interment by the action of the elements, some agency accomplished the disappointingly thorough destruction of most of the accompanying artifacts, and of many of the bones themselves. One skull, numerous other bones, the pottery vessels without exception, necklaces of beads, pendants, etc., were crushed and scattered all over Room 111, through the door in the north wall, across Room 110, and even into Room 112 beyond. The complete skull was west of the door of Room 112, while its mandible was lying southeast of the center of Room 111.

In Room 112 the layer containing the broken artifacts was on top of a thin deposit of vegetable refuse which had been partially burned. In Room 110 it was above a stratum of almost pure ashes varying from a mere line to 6 inches in thickness. In these two rooms the vertical distribution was confined to a band of washed and blown sand at no point more than three

inches thick. The same was true of the east end of Room 111, but from the line of the door toward the west wall the layer progressively thickened to a maximum of between six and seven inches, the greater depth being due to the partially decayed organic material derived from the bodies, from mats, cloth, baskets, ceremonial sticks, etc., with a considerable admixture of rat excrement.

In Room 111 the immediate covering of the specimen bearing stratum consisted of from 6 to 15 inches of stratified sandy earth deposited by wind and rain. Above this was the fallen ceiling of the room. It would be interesting to know where to place the blame for the general havoc wrought with this burial. Carnivorous animals might have dragged portions of the bodies from one chamber to another, but it is not to be supposed that they would have crushed the artifacts so thoroughly, and certainly they would not have eaten or carried away portions of them. The removal of small bones, potsherds and the like might be attributed to pack rats. However, the paucity of turquoise, the finding of parts but not all of large ornaments, and the presence of portions of the vessels too large for the rodents to have moved in Kiva L inclines one to the belief that human marauders and looters must have visited Room 111 soon after the bodies therein were laid away.

Table 4.6: List of Specimens from Burial No. 25 in Room 110/111. Morris 1924a:163-167)

Morris FS #s	Morris Artifact Description
29.0-8655	Bowl, black-on-white
8656	Bowl, black-on-white
8657	Bowl, black-on-white
8658	Bowl, black-on-white
8659	Bowl, black-on-white
8660	Bowl, black-on-white
8661	Bowl, black-on-white
8662	Bowl, black-on-white
8663	Bowl, black-on-white
8655	Bowl, black-on-white
8656	Bowl, black-on-white
8657	Bowl, black-on-white
8658	Bowl, black-on-white
8659	Bowl, black-on-white
8660	Bowl, black-on-white
8661	Bowl, black-on-white
8662	Bowl, black-on-white
8663	Bowl, black-on-white
8664	Bowl, black-on-white

8665	Bowl, black-on-white
8666	Bowl, black-on-white
8667	Bowl, black-on-white
8668	Bowl, black-on-white
8669	Bowl, black-on-white
8670	Bowl, black-on-white
8671	Bowl, black-on-white, incomplete
8672	Bowl, black-on-white, incomplete
8673	Bowl, black-on-white, incomplete
8674	Bowl, black-on-white, incomplete
8675	Bowl, black-on-white, incomplete
8676	Bowl, black-on-white, incomplete
8677	Bowl, black-on-white, incomplete
8678	Bowl, black-on-white, incomplete
8679	Bowl, black-on-white, incomplete
8680	Bowl, black-on-white, incomplete
8681	Bowl, black-on-white, incomplete
8682	Bowl, black-on-white, incomplete
8683	Bowl, black-on-white, incomplete
8684	Bowl, black-on-white, incomplete
8685	Bowl, black-on-white, incomplete
8686	Bowl, black-on-white, incomplete
8687	Bowl, black-on-white, incomplete
8688	Bowl, black-on-white, incomplete
8689	Bowl, black-on-white, incomplete
8690	Bowl, black-on-white, incomplete
8691	Bowl, black-on-white, incomplete
8692	Bowl, black-on-white, incomplete
8693	Mug, black-on-white, incomplete
8694	Water jar, black-on-white, incomplete
8695	Water jar, black-on-white, incomplete
8696	Water jar, black-on-white, incomplete
8697	Dipper, black-on-white
8698	Bowl, black-on-red, incomplete
8699	Bowl, black-on-red, incomplete
8700	Bowl, black-on-red interior, red-on-cream exterior
8701	Bowl, black, Tularosa type of coiling
8702	Bowl, black, Tularosa type of coiling, incomplete
8703	Bowl, black, Tularosa type of coiling, incomplete
8704	Bowl, black, rectangular, Tularosa type of coiling
8705	Bowl, black, trough-shaped, incomplete
8706	Potsherds, black, Tularosa type

8707	Potsherds, red.
8708	Potsherds, black-on-white
8709	Corrugated pot, spine-like ornamentation, incomplete
8710	Potsherds, corrugated. Contain restorable vessels
8736	Bird bone whistle
8737	Mammal bone scraper; recessed for inlay
8738	Thin strip of bone, 3 perforations near one end
8739	Large flake of flint-like stone; implement (?)
8740	Polished stone disk; pot lid
8741	Polished stone disk; pot lid
8742	Polished stone disk; pot lid, incomplete
8747	6 white arrowpoints
8748	6 red arrowpoints
8749	2 white arrowpoints, incomplete
8750	Portion of black chipped knife blade
8751	Portion of black chipped knife blade
8752	Portion of white chipped knife blade
8754	Piece of turquoise, unworked
8755	Crystal of galena
8756	Piece of lignite
8757	Portion of polished stone ornament
7858 [sic]	Polished stone, small, rectangular
8759	Bits of copper ore; pigment
8760	Bits of turquoise, galena, pink stone, etc., broken beads and inlay fragments
8761	Portions of beaver tusk ornaments
8762	95 disk-shaped turquoise beads; low grade stone
8763	Large cylindrical turquoise bead; low grade stone
8764	21 disk-shaped, turquoise beads, first quality stone
8765	Composite bead, ' turquoise and white stone
8766	2 large cylindrical beads. Massive amethyst (?)
8767	Spherical bead. Copper ore (?)
8768	6 button-shaped lignite beads; large
8769	3 button-shaped lignite beads; small
8770	Spheroidal lignite bead
8771	Lignite pendant, incomplete
8772	2 button-shaped beads, yellow stone
8773	Rectangular bead, stone or shell
8774	Stone pendant, ham-shaped. A fossil polished on back and edges
8775	Abalone shell pendant, circular
8776	Abalone shell pendant, circular
8777	Abalone shell pendant, incomplete

8778	Shell bead, cylindrical
8779	15 disk-shaped shell beads, white to purple
8780	2.3 feet of beads. Small olivella shells truncated
8781	10 olivella shell beads
8782	12 feet of beads strung as originally worn; two white; one black; two white
8783	13.4 feet of white disk-shaped beads like 8782
8784	About 150 black disk-shaped beads like 8783
8785	4 white, 5 black beads on original sinew string
8786	Beads, black and white on original cords
8787	Plaited rush matting, decayed
8788	Fragment of plaited rush matting, piece of sewed rush matting adhering to it
8789	Extra large and heavy sandal-shaped object; woven, technique not determined
8790	Duplicate of 8789
8791	Small coiled basket, decayed
8792	Portions of coiled baskets
8793	Portion of ceremonial stick, decayed cloth adhering to it
8794	Sandal-shaped slab of pine bark
8795	7 small bow-shaped ceremonial sticks
8796	Fragments of small bow-shaped ceremonial sticks
8797	Fragment of ceremonial stick, portions of 2 bow-shaped sticks like 8795 attached to it
8798	Bundle of small, very slender ceremonial sticks
8799	Ceremonial stick, decayed
8800	Ceremonial stick, decayed
8801	Ceremonial stick, decayed
8802	Ceremonial stick, decayed
8803	Portions of ceremonial sticks, representing at least 30 individual specimens
8804	Squash shell disk, perforated at center
8805	Squash shell disk, perforated at center
8806	Squash shell disk, perforated at center
8807	Squash shell disk, perforated at center; piece of rush matting adhering to one side
8808	Small curved stick
8809	Portion of hearth of firedrill'

Room 141

(Morris 1924a: 167-169)

Burial No. 29. Burial No. 29 was rifled in 1882; hence, a description of it necessarily will be incomplete. The ceiling of Room 141 is intact, and according to Mr. Sherman Howe, who was among the first to enter the chamber, the skeletons lay in plain view, only partially covered by sifted dust and sand. The number of bodies is variously reported to have been from thirteen to sixteen. The following objects are enumerated as having been removed from the chamber; skulls retaining hair and dried flesh; many pottery vessels and coiled baskets; rush mats; large pieces of cloth; sandals, 'clothes' and 'walking sticks' -probably large ceremonial sticks.

The clearing of the chamber threw some light upon the conditions and features of the burial. The bodies had been placed upon an accumulation of from 4 to 10 inches of refuse. Some at least had the customary complete vestiture of cotton and feather cloth, with ultimate coverings or shrouds of plaited rush matting.

The first comers turned the contents of the room, beginning at the north wall, working thence southward, and throwing the debris behind them. During this procedure many bones, bits of matting, cloth, etc., were overlooked or discarded and reinterred. The following is a list of the objects recovered from the room which it is reasonably certain were either burial accompaniments or portions of the wrappings:

Morris's FS #	Artifact Description: Contents of Room 141
9663	Fragment of rush matting, ornamentally plaited
9664	Yucca cord, mostly feather-wrapped
9665	Fragments of feather cloth
9666	Fragment of feather cloth, cotton cloth adhering to it
9667	Piece of cotton cloth
9668	Piece of cotton cloth
9669	Piece of cotton cloth
9670	Piece of cotton cloth
9671	Piece of cotton cloth
9672	Piece of cotton cloth; adhering to buckskin
9673	Hank of cord; cotton (?)
9674	Cotton cord
9675	Piece of buckskin
9676	Human hair
9677	Human hair cord, heavy, square braided
9678	Bail of yucca fiber tied with cord
9679	Center of coiled plaque or basket
9680	Bowl, black-on-white, incomplete
9681	Vase, black-on-white, incomplete

9682	Vase, black-on-red, Kayenta type
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An examination of the bones reveals the presence of ten pairs of innominate and femora, thus proving that at least ten bodies were present in Burial No. 29. It is doubtful if there were more than that number. One of the individuals was perhaps fully grown, but not altogether mature as evidenced by the separation of the epiphyses from the long bones. The others varied from infants of scarcely more than foetal development to children of twelve to fifteen years.

Had there been beads and ornaments with the bodies, certainly some of them have been scattered and overlooked by previous searchers. Since none were found in sifting the debris, it is evident that such objects had not been included among the accompaniments, thus placing Burial No. 29 in marked contrast to the group burials previously opened in the east and north wings.

Burial No. 30. In the northwest corner of Room 141, with long axis parallel to the north wall, a pit 11 by 28 inches had been dug in the floor to a depth of 7 inches. In it was the body of a young child, lying on the right side of the back with head to the west. The legs were partially flexed, and the arms were crossed over the abdomen. From the position of the mandible, it was evident that the skull had extended above the floor, and as it was missing, it is reasonable to suppose that it was removed by those who dug over the contents of the room down to the floor level.

Several layers of rush matting covered the body. Decomposition was so thorough that were they originally present, no remains of cotton or feather cloth could be identified. To the right (south) of the mandible was a black-on-white mug (29.0-9684) and inverted over it a decayed coiled basket (29.0-9685). In the region of the neck were two beads: one a conus shell with the spire ground off (29.0-9686), the other an olivella shell (29.0-9687) (Morris 1924:167-169).

Room 178

Warrior (Morris 1924a: 193-195)

Burial No. 83. Adult male on right side, two-thirds extended with head toward the east. The right arm was extended with upturned palm beneath the right femur slightly above the knee. The left was bent with hand in front of the left innominate. Measured from the lower surface of the calcaneum to the upper edge of the patella, thence to the greater trochanter of the femur, and thence to the crown of the skull, the distance was 6 feet 1/2 inches. The bones had not been in the least disturbed; hence, this figure represents the height of the individual with fair accuracy.

The grave was a pit sunk in the floor, reaching somewhat nearer to the east wall than to the west. The dimensions were: length, 5 feet 9

inches; width, 2 feet 4 inches; depth, 1 foot 4 inches. The north side revealed a downward continuation of the sandstone wall of the room, while the others showed an upper layer of from 4 to 6 inches of sand, gravel, and sandstone spalls, and beneath clean fine sand.

An inner wrapping of feather cloth had enveloped the entire body and there had been an outer covering of rush matting equally extensive. These fabrics were readily distinguishable, but so rotten that not even portions could be preserved. A shield (Field No. 4766) lay above the wrappings, covering the remains from the middle of the thighs to the forehead. This is an example of coiled basketry technique, slightly oval, 36 inches long by 31 inches wide. The longer axis was parallel to that of the body. One edge was doubled down behind the back at right angles, touching the floor of the pit. The central portion lay nearly flat, while the northward side had settled down beyond the sternal ends of the left ribs, and the margin was tilted up against the stone wall. The center was slightly convex, like the very shallow crown of a hat. The space between this area and a hard wood handle which had been lashed to the basketry on the reverse side, gave room for the hand when the shield was in use. The peripheral five coils had been coated with pitch and thickly spangled with minute flakes of selenite. The next five were stained a dark red, while the remaining forty-eight were of a greenish blue color.

Back of the skull was a small bowl-shaped coiled basket (Field No. 4787). Adjacent to it, back of the neck and shoulders, was a small bowl (Field No. 4848) containing a mug with handle broken off (Field No. 4749). Behind the pelvis was a large bowl (Field No. 4746). Between hips and heels was another (Field No. 4747), the bottom of which had been worn through, then patched with a disk ground from the side of a corrugated pot and cemented to the inner surface of the bowl with pitch. Between the feet and the north wall of the pit was a third large bowl (Field No. 4745). Broken, scattered over the skull and behind the body was an especially fine globular vase (Field No. 4750) and the cover belonging to it (Field No. 4751). The latter is a pottery disk with a stem which ends in a small knob.

In the angle back of the knees were five bone awls (Field Nos. 4760-64, inclusive), the prong of an antler (Field No. 4759) abraded at the tip as if by flaking, a sandstone rasping implement (Field No. 4757), an incomplete chipped knife blade (Field No. 4755), and several flakes of arrow stone (Field No. 4756). Below the knees two axes leaned against the masonry. From the shape of these, which is intermediate between the proper form for ax and hammer, it would appear that they were intended for use as weapons rather than as tools. One (Field No. 4752) is crudely made from a grayish stone and had been painted red. The other (Field No. 4752) is beautifully fashioned from a piece of hematite or similar iron ore. Both had wooden handles which lay with extremities just

above the right hand. The handles were round sticks, probably of skunk bush, in each case wrapped twice around in the groove of the ax. With wooden handle toward the head, a long knife of red quartzite (Field No. 4754) lay in front of the left hand. Its position suggested that it might have been in a belt or girdle. In the thoracic cavity was a spherical ornament of lignite (Field No. 4758). Beneath and at right angles to the right forearm, 1¾ inches from the wrist, was a strand of beads evidently worn as a bracelet (Field No. 4774). These were: 17 white disks; 8 lignite disks; 2 red disks; and 2 oval pieces of turquoise. Lengthwise over the body, above the shield, were three wooden objects. One (Field No. 4768) tapers from a handle at one end to a fairly broad blade at the other. It may have been a digging-stick, but one cannot escape the impression that it would have been serviceable if used as a sword. Another (Field No. 4769) is flat and sharpened, bladelike at each end. The third (Field No. 4770) is a limb about ¾ inch in diameter flattened to a blade at the larger end. It is extremely crooked, but when held in the hand seems well fitted to propel a ball or stick along on the ground. In addition there were six other pieces of timber over the body; one a pine ceiling pole about 6 feet long, another an alder limb, and the rest cottonwood branches (Morris 1924:193-195).

Appendix 7: Inconsiderate Burials

Room 139

'The Splinted Skeleton' from Room 139 has arguably received the most detailed analysis of any burial at Aztec. Morris (1924:167, 214-219) wrote about her in significant detail, as a special addendum 'Case of Prehistoric Surgery' in his burial chapter. The young woman was found near the floor of the room, and the injuries to her lower abdomen, left arm and leg will be detailed elsewhere (see Chapter 6).

Various appliances have been exhumed from prehistoric ruins in the Southwest which are supposed to have been splints used by the aborigines in the treatment of different types of fracture. However, while rational probability, strengthened by the presence of these splint like objects to which hypothetical functions have been assigned, justifies the belief that the ancient Pueblo made attempts at surgery, specific instances which prove indubitably that such was the case are sufficiently rare to merit individual mention.

In consequence we have reserved the presentation of Burial No. 27 for special treatment under this head. On the floor of Room 139 were the remains of a female, 17 to 20 years of age. The body lay facing and adjacent to the east wall, with head about 18 inches distant from the north wall. There was an average of between one and two inches of dust on the floor under the bones. Between the skull and the north wall were three black-on-white bowls (29.0-9634-9636) and back of the body, half way across the room was a mug (29.0-9637). Three layers of wrappings had constituted both shroud and casket. The first wrapping was an excellently woven cotton cloth; the second, a mantle of feather cloth, and the third, a mat of plaited rushes. The flesh and most of the wrappings had disintegrated to a brown mould. A few dried ligaments remained, notably in the region of the feet, which, though skeletonized by decay, were held in perfect position by their tendinous bands of gristly integument.

The skeleton lies upon its back, inclined somewhat toward the left. The knees point to the left and downward from the trunk at an angle of forty-five degrees, the heels having been drawn up close to the buttocks. The left arm is extended along the trunk, with hand palm upward, the phalanges extending beneath the left femur. The right arm is crossed over the abdomen.

In the maxilla the third molars were just piercing the alveolar process; in the mandible they are not visible. Fusion of shaft and epiphyses in the long bones is in no case complete.

There is evidence of injury to the left hip. The superior ramus of the pubis is broken free from the innominatum, the line of separation running through the obturator groove and the extreme edge of the acetabulum. The lower anterior boundary of the obturator foramen, that is, the fused ischial ramus and the inferior ramus of the pubis is broken away as a unit. There was

necessarily involved a tearing apart of the symphysis pubis, but the ligaments having decayed, no direct evidence of this remains. The left side of the sacrum is fractured longitudinally in the line of the anterior sacral foramina. The lateral portion was driven backward from and slightly behind the main body of the bone. A transverse break crossed the body of the fourth sacral vertebra, and the lower portion of this vertebra, together with the fifth is tipped forward and upward. There appears also to have been a slight anterior dislocation of the left femur, but this may have resulted from settling of the body as decay progressed.

As part of the injury which crushed the pelvic girdle may be recorded the fracture of the left forearm. The radius is broken almost at right angles to the shaft $7/8$ inch from the wrist. The shaft of the ulna is broken obliquely from front to back $2\frac{1}{2}$ inches from the distal extremity. There is marked posterior displacement, the carpals and freed extremities of ulna and radius lying behind the shafts of these bones. The overlapping is approximately 2 inches, which is sufficient to bring the end of the shaft of the radius in contact with the proximal extremities of the metacarpals. The thumb is folded inward, and lies between the first and second fingers.

At least six splints surrounded the broken arm. The top two of these were removed to give a better view of the region beneath before photographing. After the burial arrived at the museum, the splints were carefully removed and found to be six in number. All were intact save one. They range in length from 17.6 to 12.3 cm. Their relative lengths are indicated in the figure. One face is rounded, seemingly the natural surface of the small trunk from which they were cut, but of special interest are the marginal grooves observed in Fig 30. These occur on two of the splints, while two others are marked, each with a single median groove. The remaining pair are not grooved. It should be noted, however, that one of the splints is not complete and that three of them have been gnawed by rodents, all of which, with their decayed condition, renders all such determinations somewhat uncertain. As the splints lay they extended from the distal extremities of the metacarpals to within 3 inches of the elbow. All bindings which had held them in place were decayed beyond recognition.

From the condition of this skeleton, the conclusion may be drawn that the treatment of the fracture of the pelvis, if it was recognized at all, was beyond the skill of the primitive surgeon. The treatment of the broken arm, however, was within his province. Unfortunately, for us, at least, death resulted before sufficient time had elapsed to permit healing to begin. In consequence, the skill of the surgeon must remain in question since the cause of the overlapping of the bones is by no means certain. In an ordinary fracture of ulna and radius, the tension of the muscles would not retract the extremities a full two inches. But in a fracture resulting from a fall from a considerable height where the force of impact was received by the palm of the open hand so that the shafts of the bones might be driven out through

the flesh, such extreme displacement would not be unexpected. If the accident was of this character, and the bones were left in their present position, they are eloquent of a crude and bungling technique.

There is equal probability that the overlapping took place after death. The body reclined more or less upon the left side when laid away, and in the course of disintegration of the soft parts much of the trunk settled so far to the left that a distance of four to five inches separates the ends of the ribs which articulated with the sternum. As this settling was in progress, there may easily have been a downward thrust upon the bones of the arm which forced them past their extremities, since the hand was weighted down by the pressure of the thigh.

Desirable as it would be to know definitely whether or not there was an attempt to place the ends of the bones in apposition in order that an estimate might be made of the skill of the surgeon, uncertainty in regard to this point does not detract from the major fact established; namely, that in the mind of the Pueblo practitioner there had arisen the concept of the use of splints in the treatment of fracture, which basic concept is fundamental to so important a part of the technique of the most modern surgeons (Morris 1924:214-221).

Room 182

Burial No. 88. Adult, apparently female, of unusually small stature, less than 4 feet 6 inches. The tightly flexed skeleton lay on the left side, with head to the north, resting on the gravelly floor facing the east wall, and skull 8 inches from the northeast corner. There were vestiges of an inner wrapping of feather cloth and an outer one of rush matting, as well as the impression of cloth on the right knee. If the latter textile originally covered other parts of the body, it had decayed beyond recognition. Above the bones were 20 inches of refuse, principally ashes, cobs, cedar splinters, and bark, then an open space extending to the ceiling of the room.

The eighth, ninth, tenth, and eleventh ribs on the left side had been broken about 2 1/2 inches from their articulations with the vertebrae. These fractures had completely healed. The left innominatum had also been broken, the pubis having been driven somewhat forward from its normal position. In this case healing was not so thorough, and marked exostoses were present along the edges of the severed bone. (Morris 1924:195-196)

Room 180

'The Witch of the San Juan'

Adult, aged, apparently female. The skeleton was on the left side with head to the north, back to the west wall, the flexed legs being parallel and adjacent to the south wall 1 foot above the level of the second floor. In the

settling of the debris the head had been torn away from the trunk, it and the pottery vessels being found 1 1/2 feet north of and 12 to 15 inches below the trunk. Back of and northward of the skull was a mug (Field No. 4928) and in it two thin disks of green stone perforated for suspension (Field Nos. 4929, 4930); a small imperforate disk (Field No. 4931); a trapezoidal slab (Field No. 4932) of the same material; and a wooden disk (Field No. 4933) with a small piece of turquoise set in gum at the center of the obverse side. By the face there was a small bowl (Field No. 4934) covered with the vertical half of a large, very crude, corrugated pot.

The cordage of a feather cloth blanket enclosed all parts of the body but the knees, and there was an external wrapping of unusually coarse rush matting. A wad of cotton cloth covered the inner surface of the left knee. It had been fastened by means of a strip of yucca leaf knotted through one edge to some part of the blanket, but the fragmentary condition of the latter made it impossible to determine exactly at what point the attachment had been made. It would appear that the cloth was a pad intentionally placed upon the knee. When freed of an incrustation of filth, the wad proved to be composed of three rags. Two (Field Nos. 4937, 4938) are of plain light weight, loosely woven cloth. The other (Field No. 4939) consists of a piece like the two preceding, to which is sewed a rectangle of heavy very tightly woven fabric ornamented with parallel stripes in the following sequence: natural color (tawny white), pale red, natural color, black-brown, natural color, pale red, etc. The stripes are 1/8 inch wide. A feather-wrapped cord and a strip of yucca leaf tied end to end formed a binding cord which encircled the central portion of the burial bundle.

A heavy stake had been driven through the lower abdomen, passing in front of the right innominatum, out through the obturator foramen in the left, and thence into the earth beneath. The stake (Field No. 4940) is a splinter from a large pine ceiling log. It was trimmed and the point bluntly sharpened by an instrument which cut with remarkable smoothness for a stone implement. An unbiased observer undoubtedly would declare that the long true bevels where the rough edges were hewn off are the work of a metal blade, yet the position of the stake beneath 6 to 7 feet of ancient refuse would seem to preclude such a possibility. The head of the stake is frayed and cupped at the center by the blows of the rounded instrument with which it was driven-presumably the poll of a stone ax. There are no blood stains on the wood, hence it is probable that the individual was not impaled. Cornhusks and bean vines were the immediate covering of the remains (Morris 1924:197-198)

Room 201

Only known through Boundey sketch. No osteological or photograph available.

Kiva S

Burial No. 82. It is uncertain whether Burial No. 82 was an original interment or not. The skull, that of an adult, was the only part of the skeleton found. It was on the floor directly against the wall at the west side of the kiva. The cranium may have belonged to a skeleton disturbed in some other quarter of the pueblo, of which this part was thrown into the abandoned kiva, along with other refuse. This skull is the first example of oblique deformation exhumed in the Aztec Ruin (Morris 1924:193).

Room 185

Burial No. 126. Aged female without a tooth in either jaw, in clean sandy earth 8 inches above the original floor. A large bowl (Field No. 5122) was partly on edge against the east wall, 1 foot from its northern end. The body lay breast downward, with skull turned somewhat to the right and resting in the bowl, the rim of which passed under the base of the throat. The left arm was slightly bent, the hand extending under the pelvis. The right formed an angle of 90°, the forearm lying beneath the abdomen. The tightly folded legs pointed to the left and footward from the trunk at an angle of about 135°, the knees touching the north wall. Although the bones were badly disintegrated, on the left side of the back there were distinguishable bits of heavy closely-woven cloth, and strands of brown mould from shoulders to hips represented a wrapping of feather cloth. At the left of the large bowl containing the skull was three-fourths of one of medium size (Field No. 5123), and at the right one-fourth of an old blackened bowl (Field No. 5124) in which was one-half of a small one (Field No. 5125). Four inches above the bones, a piece of worked wood roughly 20 by 2 inches by 1 inch thick lay from the right shoulder diagonally across the trunk (Morris 1924:206-209).

Note: reanalysis of the photograph of this skeleton by two biological anthropologists (Dennis Van Gerven and Paul Sandberg, personal communication, 2015) indicate that it is likely male, contrary to Morris's determination.

Room 150

Burial No. 43. Young adult. The skeleton lay on the floor, face downward, parallel to the west wall with head 18 inches from the southwest corner. The tightly folded legs were huddled beneath the left side of the body as a result

of which the right shoulder was somewhat lower than the left. The elbows were sharply bent, the hands, open, one within the other, being at the base of the throat. Decay was so thorough that there were no identifiable vestiges of wrappings, but a good deal of brown mould suggested their former presence. Washed and blown sand and adobe covered the bones.

A very small black-on-white bowl (Field No. 3938) was inverted beneath the right shoulder. Adjacent to the south wall, slightly east of the line of the longer axis of the body, was a large black-on-white bowl (Field No. 3936) containing two mugs (Field Nos. 3939, 3940) and two small corrugated pots (Field Nos. 3941, 3942). West of the large bowl was one of medium size (Field No. 3937), lying on its edge, the bottom leaning against the wall (Morris 1924:178-179).

Room 183

Burial No. 107. Child of about three years. The grave was a pit 14 inches deep beneath the secondary floor in the northeast corner. The skeleton lay breast downward with head against the east wall and face turned slightly to the right. When decay freed the articulations, the pelvis settled down between the legs, which were flexed, leaving the proximal extremities of the femora and the distal ends of the lower leg bones extending vertically upward from the plane of the trunk. The arms were somewhat bent, the hands being beneath the abdomen. At the right of the skull was a mug (Field No. 5083) covered with a thin oval cobblestone. (Fig 21.) (Morris 1924:200).

Room 132

'The Dungeon'

When O. O. Owens and the writer were working in Room 145, the finding of the south end of the ceiling undecayed, although covered with only 2 to 4 feet of debris, suggested that the chamber later numbered 132 might still be open. A bar sunk through the fill in Room 133-2 finally encountered an obstacle which emitted the resonance of wood and then gassed on into a cavity, thus confirming the suggestion. On the assumption that there would be doors in each of the side walls, a pit was sunk in the next room to the west. A sealed door was found and a breach large enough to crawl through was made in the upper south corner. The light of a candle revealed a skeleton lying on the floor, and a chamber unmarred, at least by the hands of white men.

The veneer of practically half of the north wall had bellied outward and fallen. Elsewhere most of the adobe plaster remained, smoked black as was the ceiling. Two sets of three cedar logs held up the latter and as an additional support, there is a pair of cedar trunks beneath the south end, the

farther one set half way into the masonry of the south wall. The small poles are of cottonwood, singly spaced in the end sections, but lapping past each other in the central one, thus forming a solid layer through which the splints above are rarely visible. Beginning two pole8, or 6 inches distant from the east wall, is a hatchway, provision for which was made by leaving out the next six poles in the central section, and bridging the north end of the vacancy with sticks laid transversely, leaving an opening 2 feet 8 inches north and south and 1 foot 8 inches wide. Above the basal timbers the hatchway is flanked with masonry to a height of 1½ feet, thus acquiring a rim raised some 8 inches from the floor of Room 1332. However, at a height of 1 foot 1 inch, the south end is roofed over for a distance of 8 inches with flat cedar splints, thus reducing the top of the opening to a length of 2 feet. In the lowest cross stick at the north end are visible two grooves, 1 foot 4 ½ inches apart, worn into the cottonwood by the uprights of a ladder which rested long against it. The vent had become choked with stones fallen from upper walls. Over the smoke stain many of the ceiling timbers have become white due to a saline encrustation deposited by lain water which had soaked down to them.

In the south wall was an irregular hole averaging 1 foot 10 inches wide, 1 foot high, and 1 foot 8 inches deep, beginning 1 foot 10 inches from the west wall and 4 feet 3 inches from the floor. The interior was smoked as black as the rest of the room. In it was a deer's scapula, the blade-like end worn, a portion of a deer's innominate, a disk of squash rind, and a spherical pebble. In the west wall, respectively, 1 foot 7 inches and 2 ½ feet from the south end, and 4 feet 5 inches from the floor, two slender slightly upward sloping pegs protruded 5 1/2 inches. From the southern one something had been suspended by means of a strip of yucca leaf. Another peg~~ 2 inches long, is situated 9 inches south of the one just mentioned and 1 foot 10 inches below it. It also was encircled with a yucca tie. A fourth peg, 3 inches long, juts out and upward from the edge of a tiny mud shelf daubed on to the masonry of the sealed east door, 6 inches from the upper north corner.

The west door had been sealed with a vertical wall set back sufficiently to leave a recess or niche 10 inches deep. The dimensions of this door are: width, 2 feet 4 inches; height, 4½ feet, sill height, 1 foot. A block had been pried out of each jamb, 1 foot 9 inches, from the sill and an unpeeled stick set across the recess, 2½ inches back from the corners. The east door also was sealed, the masonry being flush with the wall at the bottom and set back 3 inches at the top. The dimensions of this door were: width, 2 feet 4 inches, height, 4 feet 8 inches, sill height, 11 inches. At the south center is a plastered opening leading into the next room, 10 inches square, half of it below and half above the sill. The visible lintels are two digging-sticks laid flatwise. In front of this opening is a platform of adobe and small stones, 2 feet 3 inches north and south, 1 foot 3 inches wide and 7 inches high. With buttocks against the southwest corner of it lay the curled up skeleton of an adult, apparently a female, on the left side, with head

pointing toward the southeast corner of the room. The height of 1 1/2 feet, thus acquiring a rim raised some 8 inches from the floor of Room 1332. However, at a height of 1 foot 1 inch, the south end is roofed over for a distance of 8 inches with flat cedar splints, thus reducing the top of the opening to a length of 2 feet. In the lowest cross stick at the north end are visible two grooves, 1 foot 4~ inches apart, worn into the cottonwood by the uprights of a ladder which rested long against it. The vent had become choked with stones fallen from upper walls. Over the smoke stain many of the ceiling timbers have become white due to a saline encrustation deposited by rain water which had soaked down to them.

In the south wall was an irregular hole averaging 1 foot 10 inches wide, 1 1/2 feet high, and 1 foot 8 inches deep, beginning 1 foot 10 inches from the west wall and 4 feet 3 inches from the floor. The interior was smoked as black as the rest of the room. In it was a deer's scapula, the blade-like end worn, a portion of a deer's innominate, a disk of squash rind, and a spherical pebble.

In the west wall, respectively, 1 foot 7 inches and 2 1/2 feet from the south end, and 4 feet 5 inches from the floor, two slender slightly upward sloping pegs protruded 5 1/2 inches. From the southern one something had been suspended by means of a strip of yucca leaf. Another peg 2 inches long, is situated 9 inches south of the one just mentioned and 1 foot 10 inches below it. It also was encircled with a yucca tie. A fourth peg, 3 inches long, juts out and upward from the edge of a tiny mud shelf daubed on to the masonry of the sealed east door, 6 inches from the upper north corner.

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When the average of 1 foot of material upon the floor was dug over, it was found to be composed mostly of dust and fine sand compacted into earth by leakage through the roof. The floor was dirty, but not enough filth was present to lead to the conclusion that it was more than had accumulated

during the occupancy of the chamber; that it was not refuse brought from elsewhere. The objects on the floor were: alder limbs and twigs, as if for firewood; two flattened sticks about 1 foot long; one mammal bone awl; a bone from a deer's leg and one from a turkey's wing; a metate; two manos; an ax; and several rubbed cobblestones. The few sherds were of Mesa Verde wares. Buried under the floor against the west wall, 1½ feet north of the door, was a corrugated pot. At the center of the room was a fire pit, 1 foot 7 inches in diameter and 10 inches deep. None of the walls contained ventilators. The skeleton in this room was not included among the burials because there is doubt in the writer's mind whether the individual received the final rites customarily accorded to the dead. The body is closely flexed, a frequent burial position, but there were no accompanying objects and no vestiges of wrappings, which, if once present, would not be expected to have decayed beyond recognition, at least where the bones held them up and prevented their contact with earth; facts which are suggestive, but prove nothing. Since the chamber was sealed, the only openings into it being the 10 inch tunnel in the east wall, through which food and drink but not a body might pass, and the hatchway, its smooth sides well out of reach, there would have been nothing to mar its serviceability as a dungeon. May not an unfortunate have died sitting on the low platform and toppled forward into the position in which the skeleton now lies? It has been left as found with the hope that it may be protected in situ as an exhibit in the ruin (Morris 1928:396-398).

Room 147

The two burials described below were found by one of the parties which entered the open rooms in the northwest corner of the pueblo in the spring of 1882. The facts here recorded were given by Mr. Sherman Howe who was a member of the party. The scattered bones found in clearing the room were parts of the skeletons not carried away by the early visitors, which in time became covered with dust and hidden from view. Burial No. 61. Adult. The skeleton, held together by dried ligaments, sat with elevated knees, shoulders touching the middle of the west wall, and head leaning back against it. There were no indications of clothing or wrappings. The unusual position of this skeleton raises the question whether the individual was put away in such an unaccustomed posture, or simply died where found (Morris 1924:186).

Room 151

Burial No. 62. Two adults. Adjacent to the north wall of the room, 5 feet from the northwest corner, there had been a crater-shaped pit in the wall debris extending to within 27 inches of the floor. Judging from the position of bone

fragments among the ashes, a layer of inflammable material was placed in the bottom of the pit, the bodies laid upon it, and covered with a quantity of fuel. Sufficient heat was generated by the burning mass entirely to consume the flesh and whatever wrappings there may have been, thoroughly to calcine the bones, and to impart to the surrounding earth and stone a pale brick color. Scattered over the fire area were the fragments of a black-on-white bowl (Field No. 4152), and at the south edge of the pit was a mug (Field No. 4153) and a tubular pottery pipe (Field No. 4154) (Morris 1924:186-187).

Only one instance of indubitably intentional cremation has been observed-Burial No. 62-and the writer is yet to be convinced that burning of the dead was a prevalent custom at any time or at any place in the upper San Juan country (Morris 1924:222).

Kiva D

(Figures in Chapter 4)

Four children and one adult burned in kiva; some with evidence of burial wrappings, but unclear if these were purposeful burials or the individuals were placed in the room for other reasons (See Chapter 4 for full discussion).

Appendix 8: Occurrence of Corn in West Ruin (found by Earl Morris)

Room	Corn type	Assessment	Extant? (AMNH)
136-2	cornhusks and tassels, corn refuse, ½ cu yard of corn tassels	observed in several other refuse heaps, nothing as yet has revealed the use to which they were put. (Morris 1928:381).	Yes
107	2 quarts burned corn		No
49	Grains of corn		No
54	Husks		No
Room above 73	Two bushels of refuse — mostly corn tassels		Sample only
62-2	Corn husks and tassels		No
71	Corn tassels		No
72	Corn stalks, husks and tassels		Yes
80	Rings of cornhusks		
68	cornstalks		Mislabeled?
95	Cornstalks, leaves, husks tassels,		No
122-2	Cornhusks and cobs		Unknown
139	Grains and ears of corn, corn leaves, cornleaf and cornhusk pot rests, cornhusk flowers	Sweet corn	Some
189	Corn refuse		Unknown
191-2	Corn husks		Unknown
179-2	Corn cobs		Yes
180	Corn tassels and husks		No
147	Corn husks		No
135-2	Corn strips		Yes
138	Ears and Grains of corn		Yes
121-2	Decayed corn tassels		No

Correlates with burials/trash-filled rooms in NW corner and north-central rooms. Does not correlate with burned areas of Southeast corner. Absent in Southwest quadrant. Explanations could include preservation associated with burial/sealed rooms.

Appendix 9: Maize: Nomenclature and History

Maize is the generic name for a variety of corn that derives from the wild grass *teosinte*. It has been collected, studied, described and written about frequently and at length as the chief and most productive domestic from the pre-contact Americas (e.g., Mangelsdorf 1983:215; Merrill et al. 2009). Scholarly understanding of corn for its first 500 years (approximately 1500 to 2000) generally relied upon physical observation and description of the kernels themselves: corn's delineated varieties (of which there are thousands) included dent, flint, flour, sweet, pop and pod corn. This type of categorization stemmed from distinctions between expressed (visible) phenotypes of corn plants rather than the often unexpressed genotype of maize. Sub-categories included various inclusions of carotenoids — organic pigments such as carotene (or provitamin A) which can affect the color of kernels. These varieties were often purposefully selected for cultivation over time to create multi-colored ears (now often called “Indian Corn”). They include many variations but are all of the same species. Despite disparities described by early corn researchers, most types of corn were closely related: 'Except for pod corn, these divisions are based on the quality, quantity and pattern of endosperm composition in the kernel and are *not indicative of natural relationships*' (Brown et al. 1985:3, emphasis added).

The confusion in defining corn varieties was at least partially resolved with the completion of the Maize Genome Project, which sequenced the entire 2.5 billion maize genome (Schnable et al. 2009). Ironically, the results have actually confused as much as clarified the origins of maize. The sheer volume of corn genes and the consequent increased chance for mutations led to an explosion of possible pheno- and genotype variation in corn. However, since much of the archaeological literature focuses on the phenotypes of corn from sites, and this was the literature that Morris and his contemporaries knew, it is necessary to include a brief summary of those types here. This will help to situate the complex historiography of sweet corn (and its lingering effects on modern research and archaeological analysis).

Of the five common corn types found in the Americas, sweet corn was the last to be described in the historical record; it was not identified explicitly until c. 1779. The five divisions of type were not formalized until late in the 20th century, nor were they ever entirely autonomous groupings with clear divisions. Between c. 1800 and the early 1900s, thousands of new species of corn were scientifically identified, described, and taxonomically ordered by botanists and agronomists. The system was haphazard at best and often led to significant confusion. Unfortunately, without the same specimens to examine genetically, those initial categorizations may easily lead to continued confusion in modern researchers. One preeminent botanist of the day (and author of the first book on corn) summed up the daunting issues with these excoriating words:

The inadequacy of [the current nomenclature] system is obvious on close examination. It is based upon a single set of characteristics, and in other respects each variety or species is subject to the full range of variation. In fact, even these seven varieties are not distinct with regard to the set of characteristics which

forms the basis of division; pod corn necessarily exists in one of the other six forms or in a mixture of them. The name of a species should stand for a description; its value is lessened as exceptions to this description are found, and utterly destroyed as soon as it overlaps other species so far as to render them indistinguishable. If the names stand for nothing but individual characters, then, it would be better to mention the character than the variety possessing it. There is also another disadvantage to the system; it establishes a bad precedent, which, with a little encouragement, would soon lead to a condition bordering on absurdity; in fact, I am not sure that it has not already reached that point (Weatherwax 1917:101).

The sources that deal with the larger problem of maize classification are extensive (there are thousands of articles on the topic), but even for the smaller and less-well-documented problem of sweet corn, consensus on description of the plant itself is complicated by the *stage* at which it was harvested. Many of the early references that detail the usage of sweet corn make no distinction between true sweet corn and field corn in the milk stage. The key difference is that during seed (kernel) maturation phase, known as the milk phase, sweet corn is genetically programmed from a recessive gene mutation to convert the starch in its kernels to sugar. This conversion gives sweet corn its distinctive, far more palatable (to humans) taste. But sweet corn that is allowed to mature past the milk stage will essentially dry out and revert to starchy kernels. In a parallel stage of development, field corn that is harvested in the early stages of maturation, when its kernels have not entirely converted to starch, will also taste sweet. This conflates an already difficult delineation made by early researchers who attempted to identify samples that were often burned, desiccated, parched, rotten and nibbled upon. It is therefore often difficult to know if early identifications truly describe sweet corn or rather an immature field corn used as a sugar corn (Sturtevant 1894:320). Thus, the confusion associated with the non-specific and often-misapplied nomenclature in pre-genetically testable sweet corn may misidentify sweet corn — either through its presence or (conspicuous) absence. The remedy for this phenomenon is to have new or historic corn samples tested with both AMS and genetic studies.

New research on the sweet corn issue is rising to this challenge, and a number of studies (e.g., de Fonseca et al. 2015; Merrill et al 2009; Schnable et al. 2009; and the *Panzea Project*) are at the forefront of genetic and regressive analysis of corn — including sweet corn — in order to find new, non-archaeological means to determine origins and spread. These studies are ongoing and promise rich rewards as well as much-needed clarification.

The historical record on corn is replete with references to its discovery in the New World by Columbus and subsequent near-immediate adoption by much of the Old World (Brown et al. 1985:4). But sweet corn per se is invisible in the historical and ethnographic record until the late 18th/early 19th century. Sometime during this era is when *most* historians agree that the first New World record of sweet corn was

recorded, in an 1822 Massachusetts newspaper by a writer using the pseudonym Plymotheus. Rather than simply listing the myriad historical accounts of sweet corn. The table below compiles early 19th century accounts by major journals, seed catalogs, or scientists of the day into a single record. These are subdivided into 'historical reference' to sweet corn (those that made it into print), or 'conspicuous absence' in prominent publications of the day — a phenomenon most historians use to argue that sweet corn was grown only in specific localities in the 19th century, northern Maine and northern Minnesota (Sturtevant 1894: 320-321). The general consensus among historians is that sweet corn was identified and brought to the English colonies during the Seven Years War (1756-1763). It was then selected and cultivated in the northern colonies — as being prized for its taste and as an alternative crop to the difficult-to-grow wheat that was not successful in New England soils — and thence slowly made its way toward the South, where it exploded into a variety of sub-species throughout the mid-Atlantic by the late 19th century.

Historical References (or absence) in Key Sources

Date	Directly Referenced	Conspicuously Absent	Significance	Source
1779	Soldier who returns from Iroquois village with sweet corn		First historical account of sweet corn in North America	Massachusetts <i>Gazette</i> , 1822
1781		Thomas Jefferson's "Notes on the History of Virginia"	Included detailed botanical data from much of the United States; sweet corn absent	Jefferson, 1781
1817	Timothy Dwight, Yale College. "shriveled corn usually called sweet corn...maize of the kind called sweet corn was the most delicious vegetable while in the milky stage of any known in this country' Unclear if this is sweet corn or field corn in the		A Seneca chief told an interviewer that the Seneca Iroquois 'in their ancient wars with the southern Indians brought back ... various kinds of corn ... which they found growing in the southern prairie'	O.P. Hubbard, New York, 1817 Sturtevant, 1885.

	milk stage			
1821		M'Mahon's American Gardener Kalendar, Gardner and Hepburn treatise on Gardening	Pre-eminent seed catalogs of the Americas	A.C. Parker, 1910
1822	'Plymotheus' (pseudonym in Massachusetts paper) 'and since that time it has been more and more diffused; and I believe within a few years only, has been generally and extensively cultivated for culinary purposes'		Seeds had come from Iroquois decades before, via Lt. Richard Bagnoll during Seven years war c. 1779 — a date quoted in numerous sources as 'first' sweet corn in New World.	Carse, 1949, Sturtevant 1885: 664-665 Onion 1964: 60
1828	Thorburn's Seed Catalog		First mentioned for sale and described as 'sugar' corn	Sturtevant 1885: 664.
1829		Noisette's <i>Manual Compleat du Jardinier</i>	Sweet corn had not reached Europe — yet. (nor in 1836)	Sturtevant 1885: 664-665
1850	A.R. Pope, Buist		Prominent Seed Catalogs. Both now mention two or three varieties of sweet corn at this time.	Sturtevant 1885: 664-665
1883	Vilmorin		Names seven varieties — all with American names	Sturtevant 1885: 664-665
1884	Sturtevant (biologist)		Names 34 varieties of sweet corn	Sturtevant 1885: 664-665
1934	Tapley (biologist) 956		Explosion of	Tapley, 1934

	varieties		subspecies of sweet corn	
1952	Maiz Dulce Exotic race, possibly adopted from South America into central America		'an [open] question which we, as botanists are not qualified to answer, and are quite willing to leave to the Anthropologists.'	Welhausen 1952: 22

Archaeological References to Sweet Corn in the U.S. Southwest.

Date	Location	Date Found	Sample Size	Sample Extant?	Source
US Southwest					
1220-1280 (AMS date)	Aztec Ruins, NM	1919	Whole ear	Yes. American Museum of Natural History	Irwin 1934
Unknown	Gourd Cave, Nitsie Canyon, Arizona	1916 (Byron Cummings)	'a few purple grains'	Yes. Arizona State Museum (specimen #1935)	Castetter and Bell 1942: 86
Likely 1250-1300 (pottery date) but also may be from earlier (BM, or later, Historic period)	Jemez Cave, New Mexico	1934-1935 (field school excavations)	Single grain	Maybe? Catalog does not match current collection information	Alexander and Reiter 1935: 62

Nutritional Comparison: Sweet Corn vs. Field Corn

Source: USDA Agricultural Research Service/National Nutrient Database ⁱ		Field Corn Yellow, Grain	Sweet Corn Yellow, Raw	Difference
Nutrient	Unit	1Value per 100 g	1Value per 100 g	
Water	g	10.37	76.05	+ 65.68 g
Energy	kcal	365	86	- 279 kcal
Protein	g	9.42	3.27	- 6.15 g
Total lipid (fat)	g	4.74	1.35	- 3.39 g
Carbohydrate	g	74.26	18.7	- 55.56 g
Fiber, total dietary	g	7.3	2	- 5.3 g
Sugars, total	g	0.64	6.26	+ 6.9 g
Minerals				
Calcium, Ca	mg	7	2	- 5 mg
Iron, Fe	mg	2.71	0.52	- 2.19 mg
Magnesium, Mg	mg	127	37	- 90 mg
Phosphorus, P	mg	210	89	- 121 mg
Potassium, K	mg	287	270	- 17 mg
Sodium, Na	mg	35	15	- 20 mg
Zinc, Zn	mg	2.21	0.46	- 1.75 mg
Vitamins				
Vitamin C, total ascorbic acid	mg	0	6.8	+ 6.8 mg
Thiamin	mg	0.385	0.155	- .23 mg
Riboflavin	mg	0.201	0.055	- .146 mg
Niacin	mg	3.627	1.77	- 1.857 mg
Vitamin B-6	mg	0.622	0.093	- .529 mg
Folate, DFE	µg	19	42	+ 23 µg
Vitamin B-12	µg	0	0	-
Vitamin A, RAE	µg	11	9	- 2 µg
Vitamin A, IU	IU	214	187	- 27 IU
Vitamin E (alpha-tocopherol)	mg	0.49	0.07	- .42 mg
Vitamin D (D2 + D3)	µg	0	0	-
Vitamin D	IU	0	0	-
Vitamin K (phylloquinone)	µg	0.3	0.3	0
Lipids				
Fatty acids, total saturated	g	0.667	0.325	- .342 g
Fatty acids, total monounsaturated	g	1.251	0.432	- .819 g

Fatty acids, total polyunsaturated	g	2.163	0.487	- 1.676
Cholesterol	mg	0	0.007	+ .0007
Caffeine	mg	0	0	-

Genetics: Mutations and Origins

Recent developments in maize origin studies, bolstered by high-level genetic research, have led to a number of new thoughts on the origin and distribution of maize. Common evolutionary theory argues that genetic diversity is created by mutation, shuffling, and recombination of genetic information that is subsequently passed on through inheritance. This process is manifest in maize, which is phenomenally genetically diverse: it contains 20 times the nucleotide diversity as that found among humans (Schnable et al. 2009). This means that vast numbers of recombinations of genes during inheritance also allow for high probability of mutation and for new variations (these are not subspecies; they are described as 'varieties' or other equivocal names). Such potential variability often benefits both researchers and cultivators, as the array of mutations in corn has historically helped maize first to be selected for domestication and adapt to a variety of environments, and also for subspecies to resist different environmental stresses.

What is clear from new research in the last decade or so is that (1) the category of flora described as maize is far larger and more complicated than first thought; (2) mutations regularly occur and result in myriad subspecies, varieties, and variations that make ancient maize trajectories exceedingly difficult to trace; (3) single, double, triple allele (single locus) mutations do not constitute separate species, but manifest in a manner that is difficult to characterize in modern research labs; and (4) without genetic testing, categorizations of ancient samples of maize are suspect.

The question remains: was sweet corn a widely cultivated crop in Pueblo prehistory, or was it a mutant species that is merely the statistical result of naturally recessive characteristics expressing themselves as byproducts of vast and prolonged field-corn production?

Although there is only a single gene difference between sweet and field corn, it is obvious from observation of the plant that in the development of sweet corn for its special usages other modifications have also been made. The single gene difference is important, however, for it means that a simple mutation can change any corn into a sweet corn. Such a mutation has been observed to occur in pure strains of corn (Carter 1948: 206).

Recent research by da Fonseca et al. (2015) supports the notion that it is possible to trace maize mutation rates backwards in order to postulate the approximate arrival of maize in the US Southwest. This hypothesis comes without the benefit of archaeological data from the US Southwest, but regression analysis indicates a hypothetical arrival of sweet corn around 1200 (da Fonseca 2015:2-3). The problem of identification in both the field and within museum collections is exacerbated by the fact

that a vast majority of prehistoric examples of sweet corn pre-date genetic testing, and the cobs alone (which are the portions chiefly found) do not demonstrably show the physical characteristics of sweet corn. Erwin, one of the first biologists to utilize archaeological data in his analysis, concedes, 'The fact that sweet corn is a mutation does not preclude the possibility of its being handed down to us from prehistoric times. However, we think the weight of evidence is against this point of view. Why would the Indian, who often faced the starvation line, grow sweet corn when field corn would give anywhere from a third to a half greater yield?' (Erwin 1951: 303).

Plymotheus (1822) describes how the issue of red core (cob) was eliminated with selective breeding. If the sweet corn had been grown in the region for generations, why would this have not already been bred out of the plant?

The corn grown by Plymotheus was undoubtedly sweet corn. If his seed did not come from the Iroquois, what was its source? The answer, though wholly speculative, seems simple. Could it not have been an unrecognized mutation originating at hand? The red cob, typical of newly developed mutations of dent corn, is highly suggestive of recent origin. In a survey made by the writer, covering the archaeological collections of maize in the leading museums of the United States, only a single ear of sweet corn was identified (Erwin: 1934).

The absence of sweet corn from these numerous collections of maize of the pre-Columbian period is significant (Erwin 1951: 303). But Erwin and others soon realized that mutation accounted for atypical corn growth, and when numerous samples of the same variation were not present, then a simple mutation could explain away divergent samples. Experiments by E.W. Lindstrom and Stuart Smith seem to indicate that sweet corn is a mutation from starch- to sugar-producing kernels in yellow dent maize. 'Due to the millions of kernels involved, it seems possible for sweet corn mutations to occur... at infrequent intervals and disappear again as suddenly as they came' (Erwin 1951: 304-305). Consequently, without numerous specimens from a single locus the mutation theory of sweet corn's origins can explain away limited occurrences of sweet corn — which are all that exist in the archaeological record.

Carter (1948), a geographer, is the first and only scholar to counter the presence/absence argument in literature by using the corn found at Aztec as incontrovertible proof that sweet corn was purposefully selected and cultivated in the US Southwest. He makes the case that because the *entire ear* demonstrated sweet corn characteristics, not simply a random kernel or two, the specimen demonstrates a likely mutation of the plant, rather than a kernel. It is startling that this argument met with no discussion — either in the form of corroboration or disagreement.

Most agronomists (Tracy 2006, Mangelsdorf 1974, Pickersgill, 1972) agree that the earliest sweet corn was cultivated in the southern Andes between 600 and 800 years ago. This strain/variety, known as *Chullpi* (Quechua for sweet corn), finds its best archaeological evidence in a ceramic decoration from c. 1000 (Grobman et al 1961:173). Without citing any archaeological data in their sourcing, most agronomists identify *Chullpi* by the sugary allele on chromosome 4, which is the same mutation found in

North American sweet corn. 'The Chullpi race is perhaps native of the Apurimac-Ayacucho zone and is distinguished by its having the shape of a hand grenade. According to Mangelsdorf (1974:109-111), this is the one that gave rise to all the types of sweet corn' (Bonavia 2013:70). Unlike North American sweet corn, however, *Chullpi* contains additional mutations or modifiers that exacerbate its kernel shrunkenness and may contribute to a generally smaller, less productive cob (Grobman et al 1961: 173).

Dissent comes from archaeologists Zevallos and Menendez, who argue that the site of Valdivia saw an independent domestication of sweet corn in South America approximately 200 years earlier (c. 800), because here sweet corn 'appears at an early date in South America and not in Mesoamerica' (Zevallos and Menendez 1966-1971: 25-26 as cited in Bonavia 2013: 147). It must be made clear, however, that the find upon which he bases this assertion (a piece of corn found inside of a sherd) has been questioned by others including Mangelsdorf (Bonavia 2013: 147). Indeed there appears to be some dissent and confusion about South America as the possible origin of the first sweet corn. Many (Grobman et al. 1961:337 and Pickersgill 1972:99) believe South America to have been the origin of corn diversity, which then spread through Colombia and into Mesoamerica (Bonavia 2013: 87). Pickersgill (2007:936), who cites Whitt et al (2002), argues that the sweet mutation in corn took place twice — as independent and localized mutations entirely separate from South American sweet corn. In accordance with this theory, Mangelsdorf (1974:111) believed that a common sweet corn origin and dispersal through trade and diffusion must be reconsidered. At this point, it is clear that we lack sufficient data properly to re-assess the argument (Pickersgill 2007:206).

Following sweet corn's emergence in South America c. 1000 or thereabouts, Wellhausen et al. (1952), hypothesized its introduction to Mexico sometime around the Spanish Inquisition. This iteration of sweet corn was known as *Maiz Dulce* (Grobman et al 1961:174, Wellhausen et al, 1952). Clear archaeological data for *Maiz Dulce* are relatively abundant: it was a cultigen grown in the modern state of Jalisco, at high altitude (Tracy 2006:157), and is phenotypically related to *Chullpi* (Kelly and Anderson 1943: 405). Wellhausen et al. assert that all Mexican maize likely had South American origins, and *Maize Dulce's* physical similarity to South American sweet corn is undeniable, with respect to both number of rows and kernels. Mangelsdorf (1974) considered that the sweet corns of Middle and North America were all derived from *Chullpi* sweet corn that was grown in highland Peru.

Unfortunately, as Kelly Swarts (personal communication 2014) points out, the traditional trait by which sweet corn has been identified (cited, for instance, in most field books for and by Southwest ethnobotanists), is that when it is dried, sweet corn kernels become translucent. This is scarcely a determinative characteristic. It also seems that sweet endosperm can actually be transferred quite easily between different lines that might differ in more complex traits like local adaptation or kernel color. However, it now seems that the vitreous (pop-type) endosperm is also translucent (but smooth), so translucency is no longer a clear diagnostic for sweet corn.

New genetic data pioneered by a consortium of scientists at *Pangea* (unpublished, Kelly Swarts, personal communication 2015) are now drilling into the question of sweet corn origins. The *Pangea* project takes what is known from the Maize

Genome Project and focuses on the specific gene mutation that results sweet corn production (this is why notions of *Zea Mays* v. *saccharata* are no longer useful in post 2010 literature). The data show that there are five independent mutations for sweet corn, controlled by a single locus on the genome. One of these mutations is found in modern Hopi corn — which may actually be a descendent of earlier mutations. Thus the modern genetic analyses of corn are at last beginning to corroborate, in places, and in places overturn the suggestions made on the basis of phenotypic observation in the earlier literature.

New analysis demonstrates that all varietals of sweet corn are homozygous recessive *su1*, but Whitt et al. (2002) have shown that North American sweet corns carry a nucleotide substitution that results in a single amino acid change in the gene product, whereas in Mexican sweet corns a transposable element has inserted into exon 1 of *su1*. The 'sweet' mutation has therefore arisen independently at least twice, and the sweet corns of North America and Mexico cannot both result from northward spread of a South American sweet corn. Could it have risen a third time at Aztec? This is still unclear, but genetic testing of Aztec's ear may provide a definitive answer, and the archaeological data provide important information and avenues for research in the meantime.

In the absence of a convincing wild ancestral form or an extensive archeological record, the problem of the origin of a cultivated plant becomes an exceedingly difficult one. Any solution must rest upon a series of generalizations of a very high order of abstraction (Whiting 1944: 501).

Sweet corn may have had its earliest origins in South America and subsequently left the region to migrate into Mexico around 250 BC. Pickersgill, a geneticist, argues "Because many of the races of maize are rather local in distribution, they are potentially good indicators of trade or migration.... The Mexican race of sweet corn, *maiz dulce*, is unlike any other Mexican race of maize but resembles Peruvian sweet corn *Chullpi*, and more particularly the sweet Colombian sweet corns derived from *Chullpi*" (Pickersgill 1972: 99). If Pickersgill and others are correct, then it seems that sweet corn did indeed move with and derive from field corn species as they dispersed north from South America.

Appendix 10: Vessel Analysis from Room 139 (Reed et al.)

Room 139 Vessels (Reed et al. 2005: 69-70)

Room 139 is located in the North Wing. Morris (1928:366) describes Room 139 as a dry room of Mesa Verde refuse that was 'very rich in specimens.' Morris indicates there were six black-on-white bowls, an undecorated bowl, a black-on-white dipper, and numerous pots sherds on the floor. He (1928:367) also indicates there were 'four small spheres of unbaked clay', for which I was intrigued. Thus, the preliminary study of Room 139 consists of an examination of three of the small, unbaked clay items. Although these unbaked clay items provide no chronological information, they do provide an important set of data for technological and social research questions.

Vessels 29, 30, and 31 (Reed et al. 2005: 69-70)

Vessels 29 (Accession #29.0/9597), 30 (Accession #29.0/9596), and 31 (Accession #29.0/9595) are mud ware pinch pots tempered with natural inclusions of silt in the clay. The vessels were unfired. Generally, pinch pots are considered local products given their frequent production using alluvial clays, their occasional assumed use as clay test pieces, and interpretation as children's toys (see Crown 2002). This set of pinch pots is a perfect example of small items that may represent a set of children's toys or a set of pinch pots that children had made.

Vessel 29 is approximately 60 percent complete with more of the rim portion missing. The orifice diameter is 5 cm, the height is 2.5 cm, and the average wall thickness is 9.4 mm.

Vessel 30 had been formed into a crude bowl shape, but then was partly squished while the clay was still wet, just as a child would do while playing with clay. The rim diameter is roughly 4.5 cm, height is roughly 2.6 cm, and the average wall thickness is 10.8 mm.

Vessel 31 is much better constructed than the other two and could have been made by an adult while showing a child how to make a pinch pot. The interior of the pot is well smoothed by fingers and the exterior also is well formed. The rim diameter is 4.2 cm, the height is 2 cm, and the average wall thickness is 7.1 mm. (Reed et al. 2005:69-70)

The small, unfired clay pinch pots (Vessels 29-30) from Room 139 would provide an interesting interpretive focus for children who would like to know that kids living 1000 years ago also played with clay, made things, and squished them too. As we are able to gather more information on the Aztec artifacts, other personal and ceremonial type information will be revealed. (Reed et al. 2005:81)

Appendix 11: Tree Ring Dates Collected from Room 139 (after Windes 2009)

Tree Ring Data, Room 139										
FS_ Num	TRL_ NUM	INSIDE_ DATE	DATE_ _SYM	OUTSIDE_ _DATE	DATE_ SYM2	AGE_ YRS	WALL	FEATURE	USE	SPECIES
1940	AZ-1698	1063		1119	v	57	S	door	LO	Jun
1941	AZ-1699	1028		1119	v	92	S	door	L	Jun
1942	AZ-1700	1055	p	1119	v	65	S	door	L	Jun
1943	AZ-1701	1020	p	1119	v	100	S	door	L	Jun
1944	AZ-1702	1060	p	1119	v	60	S	door	L	Jun
1945	AZ-1703	1043	p	1119	v	77	S	door	L	Jun
1946	AZ-1704	1048	p	1119	v	72	S	door	L	Jun
1947	AZ-1705	1016		1118	v	103	S	door	L	Jun
1948	AZ-1706	1059	p	1119	v	61	S	door	L	Jun
1949	AZ-1707	991		1119	v	129	S	door	LO	Jun
1950	AZ-1708	1067	p	1119	v	53	S	door	L2	Jun
1951	AZ-1709	1067	p	1119	v	53	S	door	L2	Jun

Appendix 12: Data Management

The following describes the ways in which data were approached and will be assessed, stored and managed.

Access and Sharing

Access to Morris's archival material is currently restricted to accredited researchers who are able to travel to Boulder, Aztec, Tucson, New York and Albuquerque to see the archives curated there. I have scanned, digitized, organized, and assigned metadata to these disparate collections, and compiled them into a single database. This database includes some 3000 photographs and 2000 scans of documents in high-resolution tiff files that are tied to metadata (assigned by me) and in searchable Excel and Aperture formats. The three chief institutions have agreed to share the images online via the Chaco Research Archive (CRA) and through their own institutional websites. The intellectual property rights will be held by these institutions, who will distribute or grant their usage (free of charge to researchers, at a nominal charge for profit-based publication) to individuals or groups submitting research and publication requests.

Metadata

The metadata are complicated because they reflect a variety of systems used by the repositories to organize their data. The metadata I assign preserve these existing metadata assignments (e.g., collection managers at the American Museum of Natural History could identify a photo numbered 508731 as the same photo curated at the National Park under AZRU 6754). Thus the metadata are cross-referenced across repositories. In addition, keywords describing what is in the document or photograph have been assigned. This system has been developed in conjunction with staff at all three institutions and the Chaco Research Archive.

Ethics and Privacy

The most notable exception to open access to these photos comes in the form of those images that deal with human remains and burials. NAGPRA (the Native American Graves Protection and Repatriation Act) mandates that all burials, associated burial objects, sacred objects and objects of cultural patrimony are subject to consultation and repatriation to descendent tribes. Archaeologists rely upon burial data to reconstruct demography, health, ethnicity and identity. The burial photos, suspected burial photos, and photos of grave goods will be scanned and digitized along with the rest of the collection, and I will utilize them in my research on demography. However, when these are returned to the participating institutions, they will be flagged for privacy and access to them will be restricted. This is an ethical decision, not one mandated by law, but one with which all the data managers, curators, and I agree.

Archiving, Preservation and Security

The participating institutions (CUMNH, AMNH, and NPS) will archive and preserve digital data as they see fit — and each has its own respective digital management program. They will each have copies of lossless tiff files, which exceed the current standards mandated by the National Archives. With respect to security, AMNH and CUMNH will post low-res photos with watermarks. The NPS and CUMNH will provide list of photos available, but they will not make the digitized files available online. The Chaco Research Archive (CRA) will integrate the photographs into their current research database and will provide links to AMNH and CUMNH for researchers to apply for publication and research rights.

Storage and Backup

Currently, all the digital files are stored on my personal computer and three external hard drives kept at home, in my office, and in the CU-Anthropology and Classics offices. Additionally, CUMNH, AMNH, and the CRA has copies of all digital files and associated metadata.

Responsibility

The responsibility for these data will be three-fold. 1) I will maintain a copy of the data set and be a steward to its use. 2) Cooperating institutions have received copies of the entire data set into their archives and will curate and disseminate according to their individual policies (all have Open Access). All primary data included in this dissertation will shortly be accessible to all members of the public.

Expected Data

In accordance with my agreements with the stakeholder institutions, I will continue to update the digital archive with additional data — final reports, new maps, teaching curricula, presentations, etc. — as they are created. These will be accessible (and able to be distributed) by Museum Staff and members of the National Park Service in order to create educational materials.

Selection and Retention Periods

The participating institutions have agreed to curate and disseminate these materials in perpetuity in their permanent collections. I expect to continue to work with these data for much of my career.

Audience

The stakeholders in this project are myriad. 1) Researchers and archaeologists who have previously been thwarted by geography, finances, and ignorance of this collection will benefit greatly. This in turn will greatly increase our knowledge of a truly significant site in the US's pre-history. 2) Broader Public — 95,000 of whom visit Aztec Ruins annually — could benefit from new information, new history, and new educational materials that will now be accessible to teachers, museum curators, and Park Rangers. 3) Descendent Communities of 23 Puebloan tribes, as well as Ute and Navajo peoples who claim affiliation with the site, will have new information about their collective history and heritage.

ⁱ USDA Agricultural Research Service, National Nutrient Database for Standard