NPS Form 10-900-b
(Jan 1987)

OMB No 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Multiple Property Documentation Form

This form is for use in documenting multiple property groups relating to one or several historic contexts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. For additional space use continuation sheets (Form 10-900-a). Type all entries.

A. Name of Multiple Property Listing

Great Pueblo Period of the McElmo Drainage Unit, A.D. 1075-1300.

B. Associated Historic Contexts

Southwest Colorado Prehistoric Context

C. Geographical Data

As defined by Eddy and others (1984:34), the McElmo Drainage Unit includes all lands with drainages that ultimately feed McElmo Creek and the Cross Canyon drainage east of Montezuma Canyon. On the south the boundary is formed by the north slope of the Mesa Verde, the divide between Mud Creek and Navajo Wash, the north slopes of Ute Mountain and the divide between Rincone Canyon and East McElmo Creek. On the west, the boundary is formed by the Colorado State Line, although geographically, the drainage unit continues into Utah. On the north, the boundary follows the divide between Monument Canyon and Squaw and Cross Canyons northeast to a point north and east of Dove Creek, Colorado. The northeast boundary is formed by the 7000 foot contour on a line running from Dove Creek to Puett Reservoir. On the east, the boundary is formed by the divide between McElmo Creek and the Mancos River near the entrance to Mesa Verde National Park.

☐ See continuation sheet

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards for Planning and Evaluation.

Signature of certifying official — Date: December 13, 1991

State Historic Preservation Officer
State or Federal agency and bureau

I, hereby, certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Signature of the Keeper of the National Register — Date: 1-31-92

INTRODUCTION

The Anasazi ruins of southwestern Colorado have long attracted the attention of both professional archaeologists and the American public. The most spectacular of these ruins date to the Great Pueblo Period, and aside from the cliff dwellings of Mesa Verde, most are located in the drainage basin of McElmo Creek. The Anasazi who built these sites are believed to be the predecessors of the modern-day Pueblo Indians, and like the Pueblo, are thought to have lived in sedentary communities. They manufactured ceramic vessels of distinctive form and decoration, and like their contemporaries throughout the Four Corners area, had an economy based on the cultivation of corn, beans, and squash, supplemented by the hunting and gathering of wild resources. Although dry-farming methods were generally used, techniques were developed to facilitate agricultural production, such as agricultural terracing and the construction of water containment facilities.

The Great Pueblo Period, A.D. 1075 to 1300, is defined by the presence of imposing aggregated villages or "towns" which contain non-residential architecture (great kivas and towers) as well as numerous residential houseblocks. The period is also characterized by the proliferation of smaller architectural units such as well-built cliff dwellings and spectacular circular and square towers, and by superlative workmanship of most categories of material culture. Although most of the population probably lived in small, hamlet-sized residential sites, tightly aggregated villages of up to several hundred inhabitants occurred within portions of the Mesa Verde Region. The largest of these villages, and the greatest concentration of them occurred within the McElmo Drainage Unit. It appears that elements of the built environment may also constitute a ritual landscape, and that a defensive posture was incorporated into the settlement system. The high artistic achievement and skill in stone masonry, coupled with the number, size, and configuration of architectural units, has led many investigators to refer to this as the classic or climax period. In stark contrast to the florescence of the Great Pueblo Period, the entire region was abandoned by the Anasazi at the end of the period.

The Great Pueblo Period is the climax of the Anasazi Tradition in the San Juan River drainage, culminating a sequence of prehistoric development which began at about the time of Christ or earlier. A variety of classification schemes have been developed for the Anasazi Tradition. The Pecos Classification (Kidder 1927) provides sequentially numbered periods of development, with alternative titles. The stage of large communities and high development of arts and crafts was termed the Pueblo III, and also labelled the "Great Period". In Roberts (1935) classification, the "Great Pueblo Period" is provided as an alternative title for the Pueblo III Period. Since their introduction, these developmental classifications have been correlated with absolute temporal

divisions, somewhat arbitrarily assigned. The Pecos Classification is more commonly used, and the Pueblo III (PIII) or Great Pueblo Period is variously dated as commencing at A.D. 1050 (Wormington 1947), A.D. 1100 (Watson 1954, Rouse 1962), or A.D. 1150 (Lipe n.d.) in the northern San Juan Drainage. It follows the Pueblo II (PII) Period which is generally dated as beginning at A.D. 900. This document utilizes Roberts' terminology, and the Great Pueblo Period for the McElmo Drainage Unit has a beginning date adjusted to A.D. 1075 to account for the earliest appearance of prehistoric great pueblos or towns. This context, therefore, includes property types associated with what might be considered the late Pueblo II and Pueblo III Periods.

The McElmo Drainage Unit is one of 10 cultural units which have been defined within the northern San Juan Drainage (Figure 1)(Gillespie 1976; Eddy et al. 1984). The boundaries of the northern San Juan drainage are the same as for the Mesa Verde Region, one of the three regional variants of the Anasazi Tradition which flourished in the Four Corners area of the southwest between ca. AD 1 and 1300. The northern San Juan is a physiographic region; the Mesa Verde Region a culture designation.

The McElmo Drainage Unit is located within the core area of the northern San Juan Drainage (Varien et al. 1990) and contains many of the large townsites, towers, and integrative facilities that have been recorded within the region. Integrative, or public architecture is found in the form of great houses, great kivas, plazas, and tri- or bi-wall circular or D-shaped structures. Enclosing walls, roads, and reservoirs are found at sites of this period, as well, and may also be forms of public architecture (Varien et al. 1990:4). Although similarities in architecture and material culture exist throughout the northern San Juan drainage, the McElmo Drainage Unit stands out in the large size and number of aggregated village sites it contains, and in the occurrence of numerous large canyonhead ruins, tower complexes, and isolated towers. It is during this period that the northern San Juan Drainage reached its peak population.

Eight properties have been listed on the National Register prior to the preparation of this document. All are habitations with public architecture. They include: Goodman Point Pueblo (5MT604), Lowry Ruin (5MT1566), Mud Springs Pueblo (5MT4466), Yucca House National Monument (5MT5006), Escalante Ruin (5MT2149), the Lancaster Site (5MT4803), the Pigg Site (5MT4802), and Yellow Jacket Pueblo (5MT5).

SETTING

The McElmo Drainage Unit is located in the Colorado Plateau Physiographic Province in southwest Colorado and southeast Utah. Only those portions of the drainage unit within Colorado are included in this context description. In

Pages E3, E5, F5, and F6 contain restricted information and are not included in this document.

keeping with the boundaries established in the Southwest Colorado Prehistoric Context (Eddy et al. 1984), the unit includes all lands drained by McElmo Creek, or tributaries of McElmo, and the Cross Canyon drainage east of Montezuma Canyon (Figure 2). Although Cross Canyon actually flows into Montezuma Creek, rather than McElmo, it has been included in the McElmo Drainage Unit because of the similarities in the cultural resources, and because these resources (in Colorado) can most effectively be managed by including them in this unit.

McElmo Creek flows west and then southwest into the San Juan River. An expansive area to the north of McElmo Creek is included in the drainage unit, while only a narrow band of land to the south is in the McElmo watershed. The general topography of the drainage unit can be characterized as a series of mesas dissected by south to southwest-trending canyons. These gently rolling mesa tops are broad and sage-covered along the northeastern edge of the unit. Although vegetation varies somewhat across the drainage unit, most is within the pinyon-juniper forest or sagebrush community. Small ephemeral washes in the upper elevations form arroyos, which as they flow south-southwest quickly become more deeply incised, forming canyons. To the south of McElmo Creek, the drainage unit is dominated by the northern slopes of Sleeping Ute Mountain, an igneous laccolith forming a prominent landmark on the landscape. The Sleeping Ute is actually three peaks - Ute Peak, Hermano Peak, and Black Mountain - which when viewed from the east look like a sleeping man. Across most of the drainage unit, elevations range from 7000 feet along the McElmo-Dolores Divide on the northeastern edge, to 5000 feet where McElmo Creek crosses the Colorado border into Utah. The Sleeping Ute Mountain rises as high as 10,000 feet elevation.

The mesa tops within the drainage unit contain deep agriculturally fertile soils, which are currently cultivated. On the mesa edges, soils are much thinner and sandstone bedrock exposures are common. Extensive exposures of bedrock are contained within the canyons. The chemical and physical weathering action of spring water has had a substantial impact on the formation of the canyons and the alcoves within their cliff walls. The presence of ready shelter and water sources made them attractive campsites and habitation sites (Van West et al. 1987:13-14). None of these deep tributary canyons of the McElmo contain drainages that flow year-round. McElmo Creek, their destination, is currently perennial, but may not have contained permanently-flowing water throughout prehistoric times (Van West, et al. 1987:12). Seeps and springs in the bedrock exposures within the canyons were undoubtedly important water sources as well.

Climate within the drainage unit is semiarid. Changes in annual precipitation and the seasonal distribution of precipitation are critical to successful crop production. At present, the drainage unit receives an average of 14-16 inches of precipitation annually (Iorns, et al. 1964), with the higher elevations receiving the larger amount. Most of this falls during the winter, in the form of snow. This amount is slightly higher than the annual

precipitation needed to sustain successful dry-farming (Hack 1942:8). Paleoclimatic reconstructions for the Colorado Plateau have indicated considerable fluctuation over time in the amount and patterning of precipitation (Dean and Robinson 1977; Euler et al. 1979; Petersen 1986, 1988). During the Great Pueblo Period, two episodes of decreased annual precipitation (e.g., drought) have been identified: AD 1120-1180, and the Great Drought which occurred at the end of the period, from 1275-1300.

CONTEXT

Prior to the Great Pueblo Period, occupation of the McElmo Drainage Unit, and the Mesa Verde Region as a whole, was generally characterized by the presence of well-dispersed, small habitation sites, a large proportion of which were single-kiva, extended family households or Prudden units (Varien et al. 1990:10; Fetterman and Honeycutt 1987). During the early half of the Developmental Pueblo Period, a number of large aggregated villages were occupied in the Ackmen-Lowry locality of the drainage unit and in the Dolores River valley to the north (Martin et al. 1936, 1938; Kane 1986). By about A.D. 900, these larger villages were all abandoned, and until the beginning of the Great Pueblo Period, smaller habitations were the norm. T. Mitchell Prudden (1903:12) defined the unit pueblo as a surface roomblock, detached kiva, and refuse area aligned from north to south. He recognized that there was variation in the size of unit pueblos and roomblock configuration, and that these small habitations were the basic architectural units in the region. These unit pueblos are today often called Prudden units.

At about AD 1075, larger aggregated settlements begin to appear in the drainage unit. Some of these contained Chacoan architectural features. These Chaco-style great house sites, commonly referred to as Chaco outliers, contain compact multistory buildings with pre-planned site layouts containing characteristic Chaco-style masonry. They are sometimes associated with great kivas and roads. A survey of Chaco outlier sites by Powers and others (1983) of the National Park Service's Chaco Center identified four outlier sites in the McElmo Drainage Unit: Yucca House, Wallace Ruin, Ida Jean, and Lowry Ruin. An additional outlier, Escalante, is located on the divide between the McElmo Unit and the Dolores Drainage Unit to the north (Powers et al. 1983). The Wallace Ruin and the Ida Jean Site, along with a third lesser known Chaco outlier, the Haynie Site (Bradley 1974), form the central architectural features of a community in the upper McElmo drainage, known as the Lake View Community (Bradley 1988). Lowry Ruin, which was excavated in the early 1930s by Paul S. Martin (1936), is now considered to be within an architectural complex of three large roomblocks surrounding a great kiva. Research has recently been initiated at another of these roomblocks, the Pigg Ruin, by Colorado State University and Ft. Lewis College. Although excavation and analysis have only just gotten

underway, the Pigg Ruin has produced surprisingly little evidence of Chacoan influence (Calvin Jennings, 1991: personal communication). The results of this work should provide important information on the nature and level of Chacoan influence at Lowry.

Two other unexcavated sites in the McElmo Drainage Unit, Casa Negra and the Ansel Hall site, are also possible Chaco outliers (Lipe 1989:55). Although outliers are found throughout the San Juan Drainage in the early 12th century, only one other has been identified in Colorado outside of the McElmo Drainage Unit. This is Chimney Rock Pueblo, located in the Piedra Drainage Unit, east of Durango.

The great house at the Wallace Ruin may have been built as early as A.D. 1040, and was definitely under construction by A.D. 1075 (Bruce Bradley 1990, personal communication). Based on Martin's tree-ring dates, Powers and others (1983:173) suggest that Lowry Pueblo was constructed as early as A.D. 1089. Additional work at the Lowry complex may, however, result in a revision of this assessment. Other sites in the drainage unit with Chacoan architecture post-date A.D. 1100 (Table 1).

Recent research in the San Juan Basin (Marshall et al. 1979; Breternitz et al. 1982; and Powers et al. 1983) has revealed that most Chaco outliers are not isolated structures, but are community complexes, consisting of a great house, which seems to have served as a public facility, and a surrounding scatter of smaller residential sites. Marshall and others (1979) have interpreted these communities as non-stratified populations using the larger great house buildings for ceremonial, storage, and administration purposes. Some feel that great houses served as residences for local elite and as regional or sub-regional administrative and exchange centers (Powers et al. 1983). Although there are a variety of theories on the social implications of great house sites (cf. Bradley 1984; Eddy 1977; Varien et al. 1990), they have been generally viewed as an in situ development that culminated in a large regional exchange network centered on the Chaco Canyon "core area" (cf. Marshall et al. 1979). This phenomenon is variously referred to as the Chaco Interaction Sphere or the Chaco Phenomenon.

For the McElmo Drainage Unit, Varien and others (1990) note that Chaco-style integrative facilities were generally introduced into already existing communities. They question whether these facilities indicate an actual Chacoan presence, or whether they represent more locally-originated attempts to conform to a Chacoan style (Varien et al. 1990:14). While excavation data are limited, smaller habitations within the drainage unit exhibit little to no evidence of Chacoan influence. There are also a number of other large aggregated villages in the drainage unit which appear to be contemporaneous with the Chaco outliers,

Table 1. Tree-Ring Dates for
Great Pueblo Period Sites in the McElmo Drainage Unit.

Site Name/Number	Estimated Number of Rooms	Number of Dates	Earliest Cutting Date	Latest Cutting Date
Wallace Ruin/5MT6970	124	50	1045	1108
Lowry Ruin/5MT1566	50	53	1086	1172
Ida Jean Ruin/5MT4126	60+	32	1124	1124
Yucca House/5MT5006	150	3		1263
Escalante Ruin/5MT2149	10+	36	1124	1138
Cahone Ruin	10+	18		1074
Ewing Site	10+	333	(1039)	1138
Cut Throat Castle	10+	5	1267	1267
Porter Pueblo/5MT1	10+	9		1194
5MT3	10+	14		1136
Dominguez Ruin	4-10	4		1123
Mustoe Site	10+	29	(1065)	1231
Lancaster Site/5MT4803	360?	8	(1062)	1195
Watson Site	4-10	4	1201	1204
Ismay Site	4-10	6		1144
Grinnell Site (YH-8)	1-3	7	1244	1244
Mud Springs/5MT4466	150+	6	1212	1212
Sand Canyon Pueblo/5MT765	400	369	(1200)	1277
Green Lizard Site/5MT3901	10+	25		1233
5MT2	10+	5	1191	1191
5MT2544	4-10	7		1078
5MT2525	10+	71	(1065)	1201
5MT9368		17	1212	1218
5MT3951	4-10	29	1265	1271
5MT3936	10+	65	1211	1214
5MT3930	4-10	21	1213	1223
5MT1690		7		1163
5MT10246		90	1270	1271
5MT3876	4-10	171	1099	1134
5MT262	1-3	61	1214	1256
5MT1825	10+	61	1256	1261

Dating information is from Robinson and Cameron (1991).
Estimated number of rooms is from Robinson and Cameron (1991) or from Varien et al. (1990).
( ) indicates dates considered not representative of the period of occupation or the Great Pueblo Period component.

but exhibit more classic Mesa Verde architecture and site layout. Most of these however, are yet unexcavated.

Certainly, additional research is needed to better understand the nature and extent of the Chacoan influence in the drainage unit. Until such research is completed, what effect the Chaco Phenomonon had on the local community remains unclear. The Dominguez Ruin, a small Prudden unit within the community surrounding Escalante Ruin, exhibits some evidence of Chaco influence in its architectural detail, but contained none of the material culture characteristic of Chaco outliers (i.e., trade items), suggesting that the relationship was more social than material (Reed 1979:137). Despite the presence of the outliers, most of the drainage unit is characterized by more typical Mesa Verde or McElmo style architecture and material culture--throughout the duration of the Great Pueblo Period. Typical architecture of this region comprises dwellings of block stone masonry in which the stones are faced by spalling and sometimes pecking; subterranean kivas with six pilasters, a southern recess, and a cribbed log roof; and during the latter half of the period, the association of one or more tower (Kidder 1924:192-196). Although some of the larger later aggregated villages exhibit evidence of a preplanned community layout (cf. Sand Canyon Pueblo), growth through accretion is generally considered more characteristic of McElmo and Mesa Verde sites.

By A.D. 1150, the Chaco Phenomenon had run its course, and construction of Chaco-style architectural features had ceased within the drainage unit. Great houses did, however, continue to be used and expanded with the construction of rooms of more characteristic Mesa Verde-style masonry, and these sites were occupied or re-occupied by the Mesa Verde Anasazi for some time thereafter.

Although the end of the Chaco Interaction Sphere may have created a change in the economic and social order of Anasazi communities in the McElmo Drainage unit, research indicates that a steady trend toward living in village-sized settlements continued throughout the Great Pueblo Period, and that this trend accelerated in the 1200s (Lipe and Lekson 1990:11). This is not to say that all, or even most of the Anasazi population lived in large villages by the end of the period, but that increased numbers chose to live in large, aggregated villages or towns. This appears to have been especially the case in the McElmo Drainage Unit, which contains the highest concentration of large Great Pueblo Period sites in the Mesa Verde Region. Yet, in contrast to Eddy's and others' (1984:40) conclusions that most small sites were abandoned by 1200, recent survey information reveals that even within the core area of the Mesa Verde Region, a large portion of the population continued to live in small sites, including Prudden units, throughout the Great Pueblo Period (cf. Fetterman and Honeycutt 1987; Gleichman and Gleichman 1989, Gruebel 1991). Smaller sites remained the norm in drainage units to the east of Mesa Verde, which saw no large site

development after Chimney Rock Pueblo was abandoned (ca. 1135), as well as in the westernmost drainage units of the Northern San Juan (Varien et al. 1990).

Eddy and others (1984:40) suggested that population within the unit declined during the 1200s; however, inventories completed since their overview was prepared (cf. Fetterman and Honeycutt 1987; Gleichman and Gleichman 1989; Adler 1988) indicate a gradual overall population increase through the 12th and 13th centuries (Table 2). Research by Crow Canyon (Varien et al. 1990) indicates that this pattern did not, however, occur in all parts of the Mesa Verde Region. Population actually decreased in the eastern and western peripheries of the region between 1150 and 1200, although some repopulation is evident in the western units during the 13th century. The Dolores Drainage Unit, to the north, was virtually uninhabited during the entire Great Pueblo Period (Kane 1986); except for three relatively large sites, the Reservoir, Emerson, and Escalante Ruins, and perhaps a surrounding community of smaller sites, occupied between 1100 and 1150 on the ridge dividing the Dolores and McElmo drainages.

A change is also noted in the spatial distribution of Anasazi settlements during the Great Pueblo Period, involving a gradual movement of populations south and west, from the sage-covered mesatops to the canyon rims and walls of the side-drainages of McElmo Creek. During the first half of the Great Pueblo Period, AD 1075 and 1200, most habitation sites are located on the more agriculturally-productive mesa tops. After 1200, inhabitants increasingly utilized canyon rim or canyon wall locations. In some cases this may have been an effort to maintain control over good springs. The largest habitation sites during the 1200s are all located at canyonhead springs. It is also during the 1200s that most of the cliff dwellings and towers in the McElmo Drainage Unit were constructed.

Although cliff dwellings reach their greatest expression in the Mesa Verde Region, canyonhead towers are best developed in the western part of the McElmo Drainage Unit (Varien et al. 1990:18). Because of this, Eddy and others (1984:43) proposed a "Hovenweep" Phase, from AD 1225-1300, for the canyonhead system in the McElmo Drainage Unit. Although spectacular, these sites are not unique, as Eddy and others suggest. Similar complexes are also found in the Montezuma Creek and Cottonwood-Recapture drainages of southeastern Utah (Lightfoot 1991:84,144). Eddy and others (1984) also proposed a "Yellowjacket Phase", AD 1050-1250, for the PII-PIII system of large aggregated communities. In actuality, the distinctions between these two "systems" are not all that clear. Yellow Jacket Pueblo, for instance, is both a canyonhead aggregate and a PII-PIII community with a possible great house. We would suggest that a refinement of the developmental sequence of the drainage unit would more appropriately involve a distinction between the 1075-1150 era of Chacoan influence, and the later 13th century community aggregation.

Table 2. Average Momentary Population Density/km2 within the McElmo Drainage Unit[1].

	YEARS A. D.						
	700	800	900	1000	1100	1200	1300
Mockingbird Mesa[2]	2	1	10	11	18	24	
Upper Sand Canyon[3]				12	30	38	50
Lower Sand Canyon[4]	0		2		18		

Notes:

1. Based on an average site life expectancy of 50 years.
2. Calculated from momentary population estimates in Fetterman and Honeycutt (1987:120, Table 5-7), based on a 16.1 km2 survey area.
3. From Adler (1988:27, Table 2), based on a 25.5 km2 survey area.
4. Calculated from momentary population figures in Gleichman and Gleichman (1989:36, Table 4), based on a 3.64 km2 survey area.

On Mesa Verde proper, the only other area of the Region in which cliff dwellings and towers are common, masonry cliff dwellings were constructed and occupied as early as the 1000s. However, the use of cliff overhangs on Mesa Verde for habitation did not become usual until after 1150 (Hayes 1964; Smith 1987:64). The increased use of cliff and canyonhead locations during the 1200s is also seen, by some, as an increased use of defensible locations, indicating that there was at least anxiety over hostilities (Varien et al. 1990:18-19).

ABANDONMENT

The Anasazi ceased their occupation of the McElmo Drainage Unit by AD 1300 or slightly before. The area may have seen some continued use for resource extraction, but full-scale habitation ended. The Anasazi had abandoned occupation of large parts of the northern San Juan Drainage prior to this, by A.D. 1200 or earlier. Mesa Verde and the McElmo drainage appear to have been the latest occupied in the region. The latest tree-ring date from the Hovenweep area is A.D. 1267 from Holly House (Winter 1977), and Sand Canyon Pueblo has a kiva construction date of A.D. 1274 (Bradley 1991). The latest tree-ring date from Mesa Verde is A.D. 1280 from Long House (Nichols and Harlan 1967).

The abandonment of the northern Southwest after such a long-term, intensive, and eminently successful occupation is one of the most unique, enigmatic, and anomalous cultural developments known to anthropologists. It has stimulated tremendous amounts of research, conjecture, and debate into causes, and continues to be a major topic of study.

Numerous explanations have been hypothesized, most centering on cultural conflict or environmental reasons for abandonment. Internecine struggle, invasion by Athabaskans or Shoshoneans, and exposure to epidemic disease have been proffered as reasons for abandonment. Environmental factors include drought, erosion, shifts in precipitation patterns, shifts in the length of the frost-free season, and depletion - of soil nutrients, faunal resources, or wood resources. Environmental explanations have been overwhelmingly deterministic, and none of the above causal factors or combinations of factors has been sufficient or compelling enough to gain wide support. Missing from all these proposed explanations are ideological factors - that is, how Anasazi belief systems may have affected their decisions on migrations.

From the intensively inventoried land within the drainage unit and adjacent areas it is apparent that some areas had a substantial population, and possibly a population increase in the A.D. 1200's. Large portions of the drainage unit and adjacent units are not surveyed, however, making it difficult to determine the precise dynamics of demographic movement or change as it relates to site and areal abandonments. Regional population did not undergo an "across the board"

gradual decline. It also seems apparent that simultaneous abandonment, or a single mass exodus, did not take place. Some areas were abandoned fairly rapidly, over a period of several years, and others may have been abandoned over a period of a few generations.

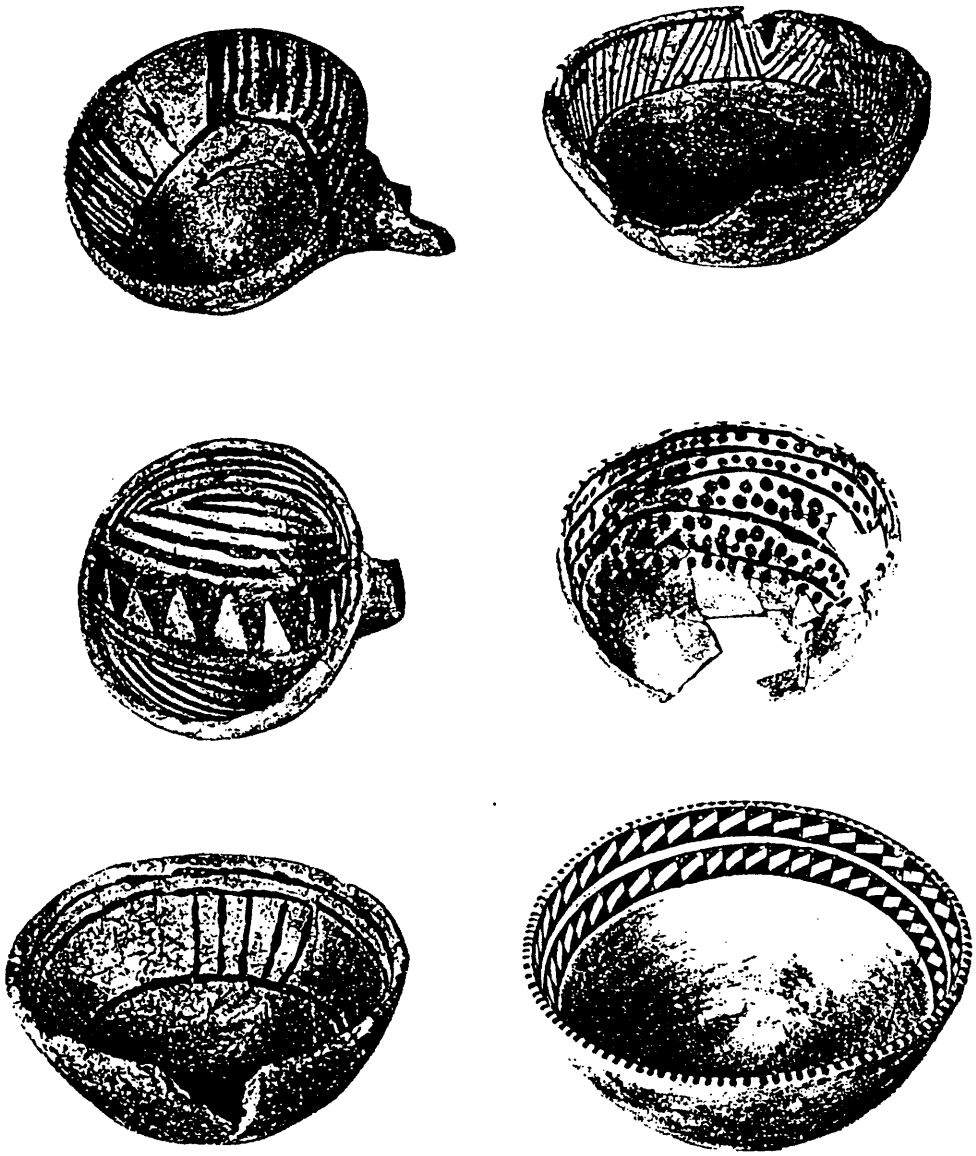
The Northern San Juan Anasazi had withdrawn from and reoccupied various portions of their territory repeatedly for hundreds of years. A pattern of occupation, withdrawal, and reoccupation of previously inhabited sites and regions is present. In some cases (e.g., the Dolores River valley), reoccupation after an abandonment, while possible, did not occur. A recent model of agricultural productivity and paleoclimate indicates that even during the most severe climatic fluctuations there were locations in the region which could successfully produce crops (Van West 1990). Deteriorating environmental conditions thus are not the sole reason for abandonment. Areal abandonments are nonetheless correlated to some extent with environmental problems, principally droughts. Understanding the "final" abandonment of the region will require understanding of the pattern of repeated abandonments, reoccupations and/or lack of reoccupation which took place prior to the Great Pueblo Period. It is a pattern which suggests that a variety of factors, including environmental and ideological, played an important role.

MATERIAL CULTURE

The Great Pueblo Period was a time in which the arts and crafts practiced during earlier periods were refined and highly developed. Great skill is evident in stone masonry, architecture, stone tool production, ceramics, and weaving.

Both corrugated and black-on-white ceramics were produced. Corrugated gray ware pottery has indented or partially indented coils over most or all of the exterior surface. Most corrugated vessels are wide-mouthed storage or cooking jars. Mancos Corrugated appears around A.D. 900, and declines in use after A.D. 1100, but is still present until at least A.D. 1200 (Breternitz, Rohn and Morris 1974). Mesa Verde Corrugated appears around A.D. 1100, and becomes the dominant corrugated type in the 1200's. Mesa Verde Corrugated exhibits highly everted rims, in contrast to Mancos Corrugated with straight or slightly everted rims. Based on degree of rim eversion, Wilson and Blinman have defined a third corrugated type, Dolores Corrugated, with moderate rim eversion (30 to 55 degrees). Dolores Corrugated is rare prior to A.D. 1050, the dominant type by A.D. 1100, and declines in frequency during the 12th century but continues in use until the area is abandoned (Wilson and Blinman 1991:14). Two main white ware types were in use during the period, McElmo and Mesa Verde Black-on-white (Figures 3-6). The earliest production date for McElmo B/w is AD 1075, marking the beginning of the Great Pueblo Period. It is the dominant white ware type on sites between A.D. 1150 to the early 1200's. Following this, Mesa Verde

McElmo Black-on-white



Not to scale

Figure 3. McElmo Black-on-white pottery (from Wilson and Blinman 1991).

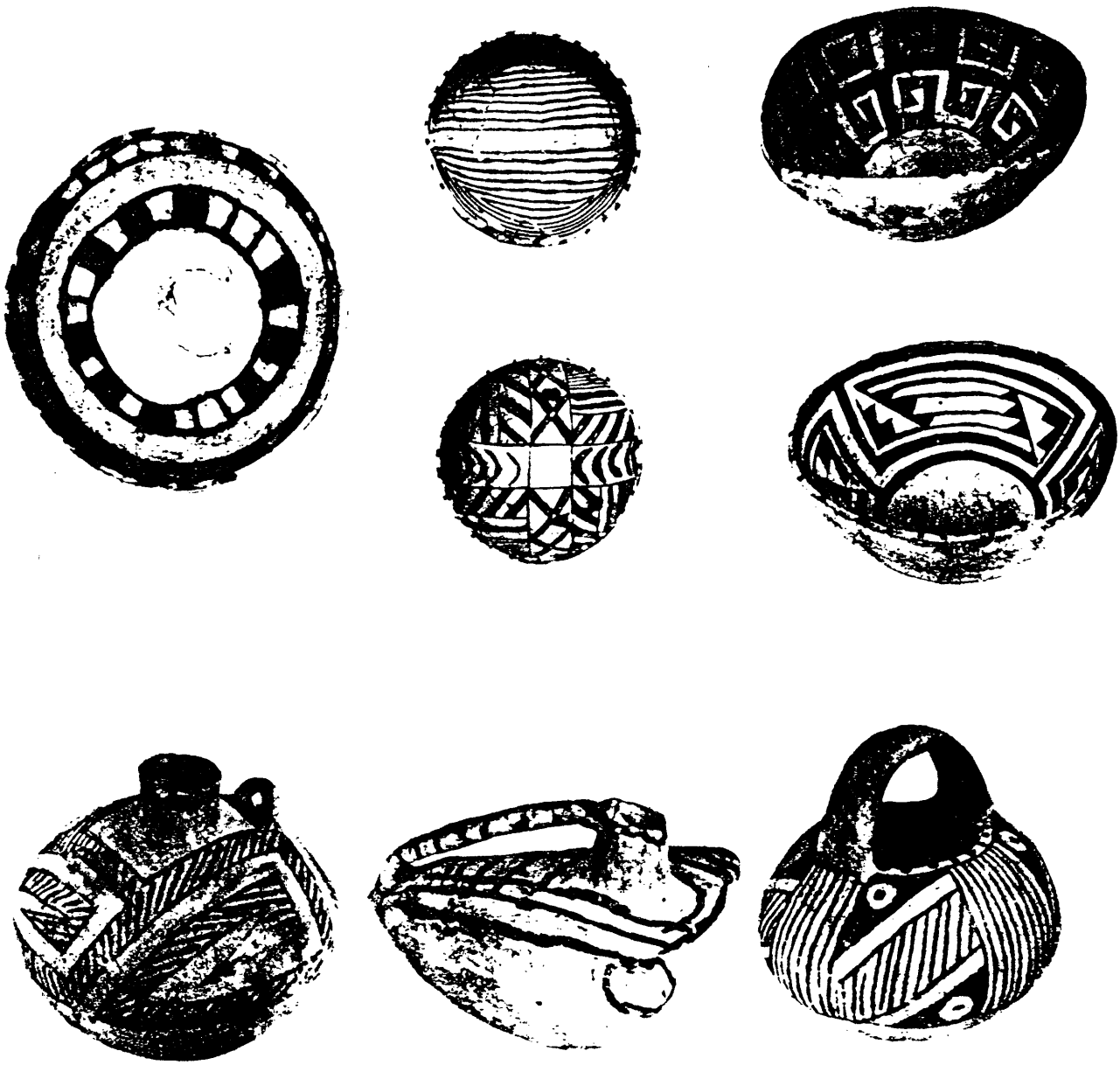


Figure 4. McElmo Black-on-white pottery (from Breternitz, Rohn, and Morris 1974).

Figure 5. Mesa Verde Black-on-white pottery (from Breternitz, Rohn, and Morris 1974).

Mesa Verde Black-on-white

Not to scale

Figure 6. Mesa Verde Black-on-white pottery (from Wilson and Blinman 1991).

Black-on-white is the principal white ware type. Mesa Verde B/w first appears by A.D. 1180. Vessel forms for both types include bowls, dippers, ollas, and mugs. Prior to the development of McElmo B/w, Mancos B/w was the dominant white ware type. Paint on McElmo and Mesa Verde B/w vessels is predominantly organic, while Mancos B/w generally utilizes mineral paint. Distinguishing the types on the basis of paint can be misleading, however, as some areas produced McElmo and Mesa Verde B/w with mineral paint, and organically painted Mancos B/w is known (Wilson and Blinman 1991). The relative frequency of ceramic vessels with painted decoration continued to increase, and geometric designs became highly structured and intricate and reached a peak of elaboration.

Well-made chipped stone tools are present during the Great Pueblo Period, including bifacial knives and projectile points. Arrow points are side-notched (Hayes and Lancaster 1975). Hafted stone axes and hammers or mauls continue to be used. Troughed metates were replaced by flat metates set in bins made of stone slabs. Bone tools are not uncommon, consisting of the same forms used in earlier periods, such as scrapers, awls, and needles.

Textiles including cloth, sashes, basketry, sandals, netting, cordage and woven fur robes have been recovered from cliff dwellings in and near the McElmo Drainage Unit. Cotton, yucca, feathers, and animal hair were used in weaving. There is no evidence that cotton was ever grown in the central part of the Mesa Verde Region. Basketry and sandals are high quality, but do not show the superlative excellence present during Basketmaker periods (Watson 1954).

Stone masonry reached a peak of elaboration, both in the use of shaped sandstone blocks and in the overall configuration of architectural units and sites. Unshaped stone was still used in walls, sometimes poorly built, and wattle and daub construction was still used. A higher proportion of masonry used spalled or scabbled sandstone blocks and pecked blocks. In some structures block masonry shows an astounding degree of finishing. Circular towers, for example, often have the outer face of each block pecked so that a curving surface is formed.

PROPERTY TYPES

Seven property types have been defined for the context. They are: (1) habitation sites with public architecture; (2) habitation sites (without public architecture); (3) temporary habitation sites; (4) isolated ceremonial or communication structures; (5) isolated storage facilities; (6) water and soil control features; and (7) resource procurement or processing sites. These seven functional types were arrived at through an examination of the OAHP and BLM site files for the drainage unit. They are intuitively derived and conform with established usage by researchers in the region. As will be noted in the following descriptions, there is a great deal of variability exhibited in most of these property types. As such, examples provided may be representative of the property type, but are not intended as "type sites". Although it is possible to split the properties into more specific types, an approach many researchers in the area have taken, this approach was not used because it was felt that the definition of fewer, broader types best accommodates the wide variability expressed in the archaeological record.

Although a property may be assigned to more than one type, there is a basic hierarchical ordering to the first four categories. These types contain residential architecture. If public architecture is present, the property is classified as a "habitation site with public architecture". In the absence of public architecture, if one or more roomblock is present, the property is a "habitation site", even if features associated with subsequent property types are present. Temporary habitation sites contain evidence of less-permanent occupation. Isolated ceremonial or communication structures may be found to contain other associated features, such as storage rooms and midden areas, but if ritual architecture is present and residential architecture absent, the property is included in this type. In each of the above four types, elements associated with properties lower in the hierarchy may be present.

Although presented here as separate types, distinctions between the types are not always clear cut, nor do the separate types always, or often, appear in isolation. A good example of this is Holly House (5MT602), a canyonhead habitation complex located in Hovenweep National Monument, where several small roomblocks are associated with a rectangular tower, various water and soil control features, and possible public architecture. Nearby are several small granaries and a petroglyph panel which may or may not be associated with the habitation complex. Site boundary definition for properties such as Holly House will vary with the interest of the researcher and is not hard and fast. At which point nearby storage facilities or other features are considered part of a property--or separate properties--is a consideration in the identification of all property types.

Reuse of the same location over time and the use of a single location for more than one limited use function also appear to have been common practices. Despite these limitations, all properties which have been recorded within the drainage unit can be placed in one or more of these types.

During the Great Pueblo Period, throughout the Four Corners area, petroglyphs are a common occurrence on cliff faces and talus boulders. Paintings (pictographs), on the other hand are more common in inhabited rock shelters (Schaafsma 1980:135). Human hand prints and the highly formalized rectilinear human stick figure with arms held up as well as down are characteristic representations for this period. These rectilinear human figures, lizards, and lizard-men are considered diagnostic of the Great Pueblo Period, along with an increased number of geometric designs resembling those of pottery and textiles, and abstract designs such as rectilinear scrolls, spirals, and concentric circles. The humpbacked flute player, Kokopelli, appears in Anasazi rock art as early as A.D. 1000 and continues to be found in rock art of the Great Pueblo Period (Schaafsma 1980:135-136).

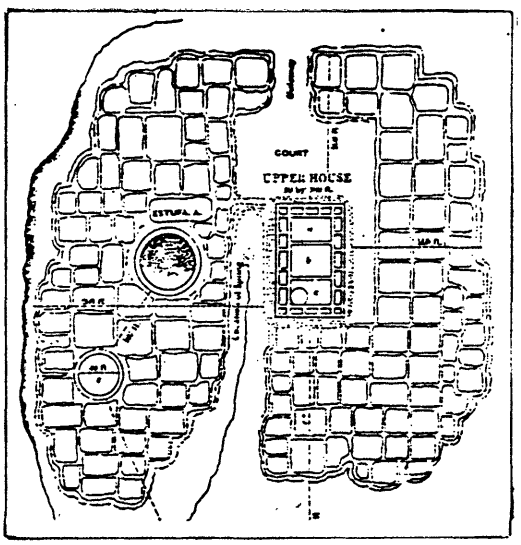
In the McElmo Drainage Unit, rock art occurs not in isolation, but is associated with habitation sites, or temporary camps. It is, therefore, not identified as a site type, or property type, of its own, but may be added as a property type if in the future isolated rock art sites are identified.

Property Type: Habitation Sites with Public Architecture

A number of habitation sites in the McElmo Drainage Unit contain public, or integrative, architecture. Varien and others (1990:4) define "public architecture" as "public works believed to be produced by suprahousehold labor organization, or facilities interpreted to function as community ritual-integrative structures". The presence of these architectural features indicates that the sites served as ceremonial or redistribution centers for a surrounding community of smaller residential sites.

Public architecture that has been recorded within the McElmo Drainage Unit includes the Chaco-related great houses, great kivas, plazas, and bi-wall or tri-wall structures. Varien et al. (1990) also suggest that enclosing walls, roads, and reservoirs be included in this category. Small kivas, and perhaps towers, also appear to have served an integrative function, but on a smaller scale, so are not considered to be community wide ritual-integrative facilities.

Between A.D. 1075 and 1150, throughout the northern San Juan, the Great Pueblo Period is dominated by Chacoan great house sites (Figure 7). Great houses are distinct from the surrounding contemporary Mesa Verde Anasazi sites by having a compact, pre-planned layout with built-in kivas, multiple stories, compound



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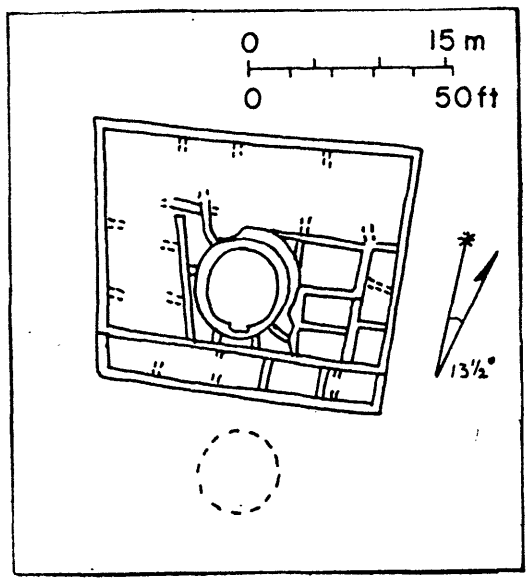

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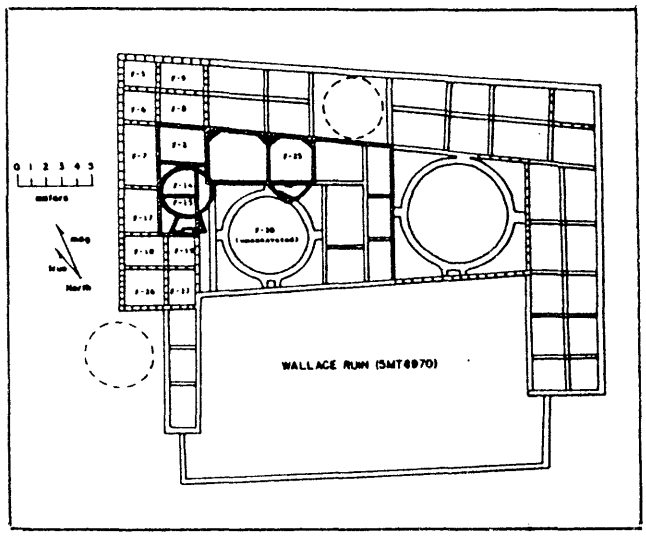

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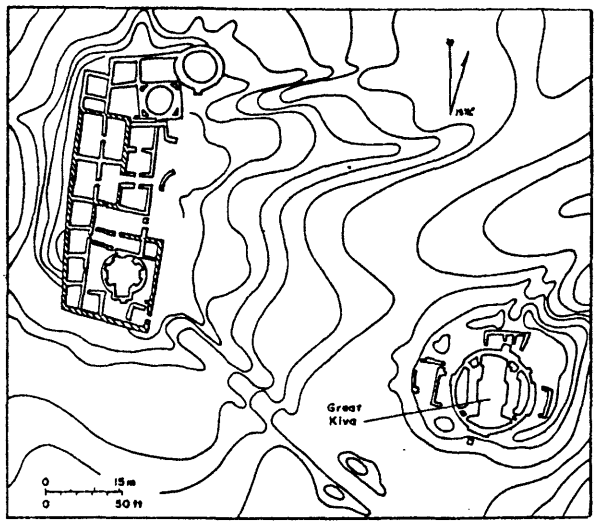

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Figure 7. Chaco-related sites. a: Yucca House - 5MT 5006 (from Holmes 1878); b: Escalante - 5MT 2149 (from Hallasi 1979); c: Wallace - 5MT 6970 (from Bradley 1988); d: Lowry - 5MT 1566 (from Martin 1936).

or core and veneer walls and Chaco-style masonry, larger rooms and kivas, and Chaco-style kivas. They are also sometimes associated with a great kiva, and/or a prehistoric road (Powers et al. 1983: 15-16; Bradley 1984; Lipe 1989:59). Great houses ordinarily occur at the center of a cluster of hamlet-sized settlements (Marshall et al. 1979; Breternitz et al. 1982:31; Lipe and Lekson 1990:7). Most of the outliers in the McElmo Drainage Unit were introduced into existing communities (Varien et al. 1990:13-14) and the great houses were located on hills or other prominent locations. Although the great houses are generally considered to have provided some social integrative function, just what role these facilities served in the local community remains unresolved.

Although most of the outliers north of the San Juan River are located in the McElmo Drainage Unit, possible outliers continue to be identified as far away as Cedar Mesa, Utah (Bradley 1988:29).

Despite the attention that has been given the outlier sites, habitation sites with public architecture appear to become more common through time until the late 1200s (Varien et al. 1990:19). During the 1200s, these community centers tend to be located at canyonhead springs, such as Sand Canyon Pueblo, Goodman Point Pueblo, and Yellow Jacket, and may include most of the canyonhead habitation clusters within the drainage unit (Figures 8 and 9). Thirteenth century sites with public architecture often contain evidence of site level pre-planning. For instance, Sand Canyon Pueblo evidences community scale building episodes, massive architectural style, and public buildings and spaces; all suggesting use as a large-scale dwelling (e.g. village) and as a community center (Bradley 1991:98).

Habitation sites with public architecture tend to be large (containing more than 50 habitation rooms), although a few smaller sites of this type also exist, such as Et al. Pueblo on Cedar Mesa, and Morris Site 20 in the upper La Plata drainage, both of which have possible great house architecture, but contain an estimated 25 and 8 rooms, respectively. Perhaps the largest site with public architecture is Yellow Jacket Pueblo, 5MT 5, with an estimated 600 rooms and 124 kivas (Lange et al. 1986). Many of the roomblocks at Yellow Jacket probably post-date the great house occupation. Yellow Jacket, as well as several other ceremonial centers of this period (e.g., Goodman Point, Lancaster Ruin), exhibit a surface configuration of numerous roomblocks arranged in a parallel series (Figure 9a). Lipe (1989:61) notes that the spaces between the rows of roomblocks may have served as plazas.

Example: Wallace Ruin (5MT6970)

Wallace Ruin is a multistory, multicomponent pueblo which was constructed and occupied between A.D. 1045 and 1125, with a 13th century reoccupation. The

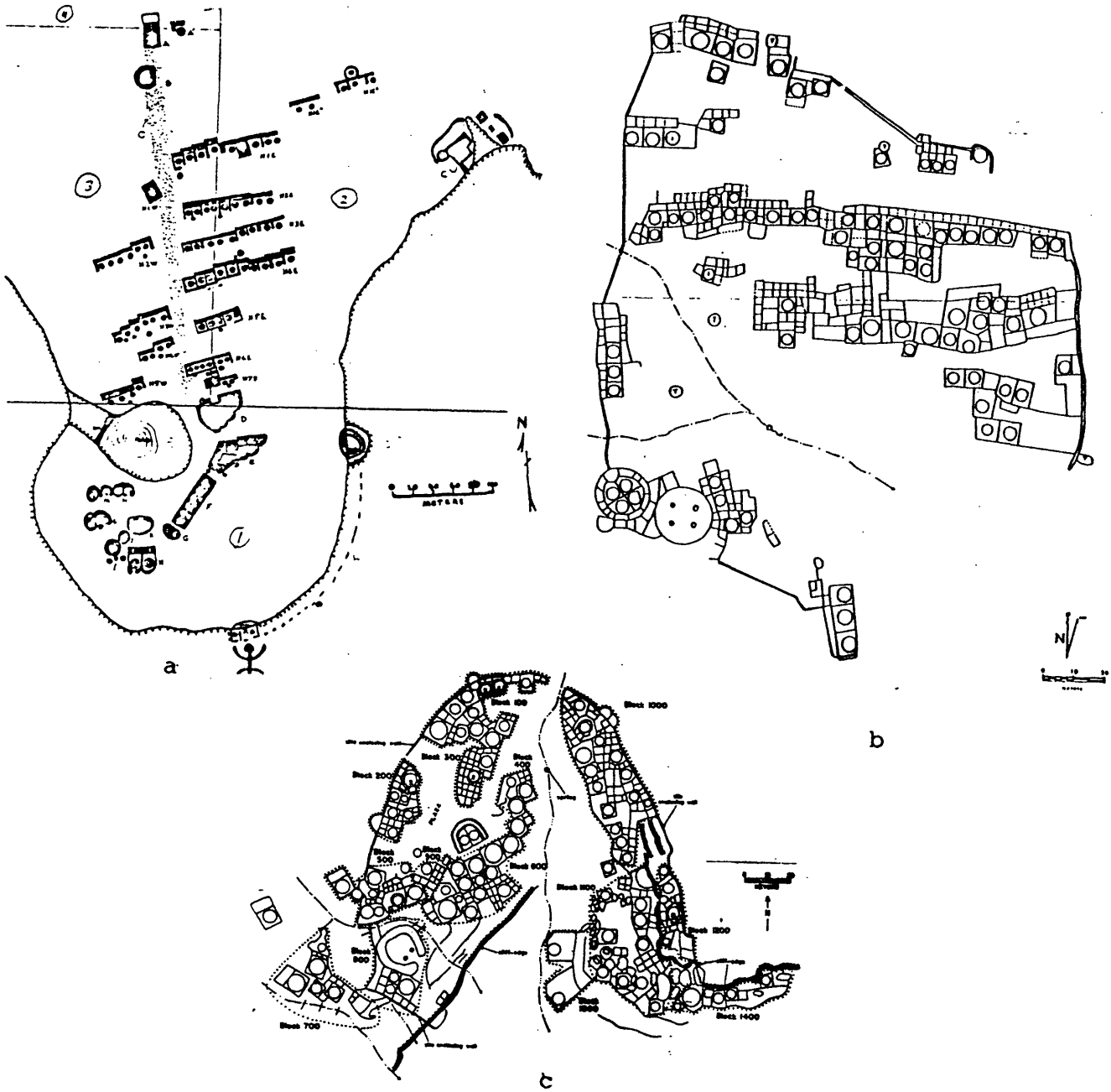


Figure 9. Canyonhead aggregates. a: Yellow Jacket - 5MT 5 (Wheat 1982); b; Goodman Point - 5MT 604 (from Adler 1988); c: Sand Canyon - 5MT 765 (from Bradley 1991).

ruin is part of the Lake View Community near Cortez, which formerly consisted of two other large sites, Ida Jean and Haynie, a great kiva, a reservoir, several smaller habitation sites, and possible monumental earthen mounds. Ida Jean Site has been bulldozed, and the Haynie Site has been mined for artifacts. Bruce Bradley has been excavating Wallace Ruin since 1969 (Bradley 1974, 1984, 1988).

Bradley has identified four separate building episodes at Wallace Ruin (1988:8-16). The first building episode is estimated to include 10 two story rooms and a kiva south of the rooms. One of the rooms may have been three stories tall. Masonry is spalled sandstone slabs set in thick mortar, with chinking, similar to styles known both for Chaco Canyon and Mesa Verde. Based on tree-rings, the initial building episode dates to A.D. 1045 or earlier. The second building episode is evident in a single two story room. The masonry superficially resembles banded masonry from Chaco Canyon, but is simple masonry, i.e., the walls in cross-section are one stone wide. This phase is tentatively dated to A.D. 1075-1100. The third phase of building was the construction of a pre-planned U shaped symmetrical pueblo with an enclosed plaza on the south and two large kivas in the central portion of the building. This was the major building episode at the site, and at least 36 two story rooms were built. It is estimated that at least ten of the rooms may have been three story, so some 80 plus rooms were built. Masonry is unshaped sandstone slabs with a vertically squared edge set flush with the exterior face of the wall in thin mortar. Irregular edges were on the interior, and the opposite side of the wall was similarly constructed, producing a compound wall. The center of the wall was filled with mortar and rock. Walls are uniformly 50 cm thick. The masonry resembles late Bonito Phase (A.D. 1075-1125) masonry at Pueblo Bonito in Chaco Canyon. Tree-ring dates indicate this construction phase occurred in the first or second decade of the A.D. 1100's. The site was reoccupied in the mid to late A.D. 1200's, with some rooms remodeled, and kivas constructed within rooms and over rooms. The masonry used is simple, without much pecked block stonework. Mesa Verde Black-on-white pottery is present.

Ceramics from the ruin include a large array of local and nonlocal types. Of the total decorated assemblage, 2.7% are Cibolan Whitewares or White Mountain Redwares. Higher numbers of nonlocal wares are present before A.D. 1200 than are present after that date. In deposits which were only from the A.D. 1075 - 1130 period, nearly half of the decorated sherds are nonlocal, mostly Cibolan and principally Chaco Black-on-white. An abundance of projectile points and bifaces have been recovered from the site, with most points being typical side-notched PII/PIII style. Other chipped stone, ground stone, and bone tools are present, and a variety of ornaments have been recovered. Several burials are present, most dating to the post-A.D. 1200 reoccupation (Bradley 1988:19-29).

Based on the masonry style, architectural configuration, and presence of Cibolan ceramics, Bradley has pointed out that at least the main construction

phase (building phase 3) is Chacoan related (1988:29). A model of the possible organization of the Chaco System in the outlying areas has also been presented (Bradley 1984).

Significance

Habitation sites with public architecture are extremely important to our understanding of the Great Pueblo Period in the San Juan Drainage. There are approximately 38 habitation sites with possible public architecture recorded throughout the Mesa Verde Region (Varien et al. 1990). Nearly half of these (18) are located in the McElmo Drainage Unit; 14 in the Colorado portion of the drainage unit. The largest of these sites are all located within the area defined for this historic context: Sand Canyon and Goodman Point pueblos, with 350 to 400 rooms each, and Yellow Jacket Pueblo, with an estimated 600 rooms. Research at these sites and other habitations with public architecture in the drainage unit is essential to our understanding of the Great Pueblo Period of the Mesa Verde Region. Properties of this type are nationally significant due to their rarity, and their importance to research about southwestern U.S. prehistoric political and social development, population aggregation, and regional abandonment. Many of these properties are currently being considered for inclusion in the proposed Anasazi National Monument (National Park Service 1990).

Areas of significance for habitation sites with public architecture include (1) architecture, (2) community planning and development, and (3) the study of prehistoric culture through excavation and analysis of physical remains. Properties of this type may be considered eligible for inclusion on the National Register under Criterion A, being associated with events that have made a significant contribution to the broad patterns of our history, as they comprise some of the few remaining examples of what were the centers of Anasazi ceremonial and/or community activity between AD 1075 and 1300, the final period of prehistoric occupation of the Four Corners area. Chaco outliers may also be considered significant for their association with the Chaco Interaction Sphere during the period 1075 to 1150.

Habitations with public architecture are also eligible under Criterion C. The community planning represented in the layouts of these sites, and individual architectural elements, such as great houses, tri-wall structures or great kivas, embody the distinctive characteristics of Great Pueblo Period architecture. The architectural remains are also representative of the highest level of architectural skill and artistry achieved in the prehistoric Southwest.

Sites which contain data on relevant research questions are eligible for inclusion on the National Register under Criterion D. Research at habitation

sites with public architecture is critical to understanding the nature of community integration during the Great Pueblo Period, and to defining the social structure of prehistoric communities in the region. Distinctions between the Chaco outliers and the later community centers need to be further explored and the transition between these two apparently separate cultural manifestations warrants additional research. Bradley (1988:29) notes that "although a substantial effort has gone into the identification of Chacoan outliers..., little is actually known about how the sites may have been used and functioned because of the very limited amount and quality of excavated data." Excavations at habitations with public architecture are also critical to understanding prehistoric aggregation in the American Southwest. The common assumption that the large great houses and canyonhead ruins are evidence of population aggregation may yet need to be tested. If aggregation did occur, its timing is of crucial importance in establishing why it occurred. Obtaining precise dates from large sites with public architecture is needed to accomplish this. With the exception of Crow Canyon's work at Sand Canyon Pueblo, recent research at habitations with public architecture, utilizing modern field and laboratory methods, has been extremely limited.

Questions which may be addressed through research at habitation sites with public architecture are numerous and varied, reflecting the diversity of architecture and material remains found at this property type and its importance to research in this area. Many of the questions presented below have developed out of research at the Crow Canyon Archaeological Center. Others have been asked since the first archaeologists began to explore southwestern Colorado.

Research Questions:

1. Why did aggregation occur to the extent it did during the Great Pueblo Period? What social or environmental factors were involved and why is this phenomenon epitomized in the McElmo Drainage Unit?

2. What were the processes and relative timing of aggregation? Did aggregation occur on the same time schedule throughout the drainage unit (as might be expected if it was a response to warfare), or did it occur at different times in different places, in response to changes in population density and the development of land tenure systems?

3. What was the role/influence of the Chaco culture on aggregated settlements occupied between AD 1075 and 1150?

4. What caused the apparent changes in social integration from the end of the Chacoan influence in the San Juan Drainage (ca. AD 1150) to the late 13th century?

5. Did the modes of community integration change in the several decades prior to abandonment of the drainage unit and the Northern San Juan Region? If so, how?

6. What integrative purpose did great kivas serve? Were they primarily ritual or social facilities, or were they primarily facilities for resource redistribution, as suggested by Plog (1974)?

7. Do settlements with public architecture exhibit a different standard of living than those lacking public architecture (i.e., Do communities or groups associated with public architecture have greater access to exotic goods or valuable animal foods, less evidence of nutritional stress, etc.)?

8. What activities took place in bi- or tri-wall structures, and what were their function?

9. What roles did the various forms of public architecture play in religious and socio-political integration within the community? Within the region?

10. Do the various types of public architecture indicate: (a) the development of a "managerial elite" and sociopolitical rank or incipient stratification? or (b) the intensification of religious practices in what were basically egalitarian communities organized at a "tribal" level? or (c) the development of inter-community, regional, economic, political, or religious systems of integration?

11. What was the purpose of the low enclosing walls associated with many of the large canyonhead habitations and do they represent public architecture?

12. Did habitations with public architecture serve a distinct role in the community? How wide an area did they serve/influence? Were they occupied continuously year round?

Registration

Great Pueblo Period habitation sites with public architecture are highly significant properties. All known properties of this type within the drainage

unit have excellent potential for yielding information important to our understanding of prehistory. Properties containing intact cultural deposits have data potential, even where large portions of the sites have been highly disturbed. They are therefore eligible for inclusion on the National Register of Historic Places under Criterion D. Unfortunately, many of these sites have been seriously disturbed through vandalism and/or unchecked deterioration and erosion. The Ida Jean and Haynie sites, both Chaco outliers in the Lake View Community, have been highly disturbed (Bradley 1988:8). These and other sites, such as Mud Springs Pueblo, retain only a portion of their original integrity; however, many rooms, extramural activity areas, and portions of the midden areas may yet be undisturbed. Mud Springs Pueblo is listed on the National Register despite its high level of disturbance.

Intact cultural deposits are buried, relatively undisturbed remains which may include artifacts, ecofacts, architecture, and human burials. Few, if any, of the known habitation sites with public architecture are in pristine condition, but most do contain substantial intact deposits. Sites with relatively undisturbed deposits will of course contain the greatest potential for addressing a wide range of research questions. Habitation sites with public architecture which have been completely excavated or vandalized may also remain eligible under Criterion D for the information they contain on architectural style, construction techniques, and site layout. They may also contain wood which can be used for tree-ring dating.

Habitation sites with public architecture may also be considered eligible under Criteria A and C if they have standing architecture with at least partially intact masonry walls exhibiting well-shaped or pecked stones. Excavated sites have integrity if they have been backfilled, sheltered, or stabilized. Unexcavated properties which remain relatively undisturbed are expected to meet the registration requirements for Criterion D, and possibly A and C, because they have been protected by the post-occupational deposition of soils.

Property Type: Habitation Sites

Habitation sites is the property type containing the largest number of sites associated with the Great Pueblo Period of the McElmo Drainage Unit. Habitation sites range in size from small hamlets of what probably housed a single extended family group, to very large aggregated villages of several hundred rooms. A pattern of numerous small habitation sites clustered around larger pueblos has been observed in the drainage unit, and within other populous areas of the Mesa Verde Region for this time period (Lightfoot 1991:5; Rohn 1977). These larger pueblos, from whence the term "Great Pueblo" is derived, most often contain some form of public architecture, indicating the site served an integrative function in the larger community. Large habitation sites with

public architecture are distinguished as a separate property type in this document.

Data from the Colorado State site files indicate that small pueblos, containing from one to five surface rooms, continue to be common during the Great Pueblo Period, making up approximately 37% of the open pueblo sites within the drainage unit. Another 34% contain between 6 and 10 surface rooms. Approximately 18% of the recorded open pueblos contain 11 to 30 rooms, and only 11% contain more than 30 rooms. Yellow Jacket Pueblo is perhaps the largest single site in the study area, with an estimated 600 rooms and 124 kivas associated with the 13th century occupation. This site has also been included in the "Habitations with Public Architecture" property type, due to the presence of a great house and great kiva, but these features may date to a time prior to the heaviest occupation of the site (Lipe 1989:61). Other large habitations lacking apparent public architecture, associated with this period, include the Stevenson Site, the Bass Site, Seven Towers Ruin, the Griffey Site, Miller Pueblo, and Cannonball Ruin, and a number of unnamed ruins, which contain up to 75 surface rooms. In the northwestern portion of the drainage unit the Lancaster Site, Herren Farms Complex, Beartooth Ruins, and the Cow Canyon Rim Ruin contain hundreds of rooms each. These large habitations are located primarily in the western half of the drainage unit, particularly in the upper reaches of the tributaries of Yellow Jacket and Cross Canyons (Figure 8). Lipe (personal communication) notes that the apparent absence of public architecture at many of these ruins may simply be due to a lack of good mapping and survey.

Great Pueblo Period habitations are constructed with sandstone masonry architecture, and characteristically contain masonry surface rooms, subterranean kivas, and trash midden areas. The surface manifestations of these features are rubble mounds, circular depressions, and artifact concentrations, respectively. With the possible exception of Chaco-style masonry, the masonry work of this period in the McElmo Drainage Unit reaches the highest level of technical skill achieved by the Anasazi, with stone blocks from local sandstone outcrops uniformly shaped by pecking, and in some cases grinding. Masonry towers are also present at many of these sites. The drainage unit is best known for the towers at Hovenweep, on the Colorado/Utah border (Winter 1976), but towers are commonly found at habitation sites throughout the drainage unit. Fetterman and Honeycutt (1987:86) report that towers are present on approximately one-third of the habitations on Mockingbird Mesa. For the entire drainage unit, it appears that towers are present on 20-25% of the known habitation sites. These towers are often connected to kivas through underground passageways, indicating that they served a ceremonial/ritual function. In his research on Hovenweep towers, Winter (1977:210) postulated that towers also indirectly served a number of economic, agriculturally-related purposes such as crop storage, processing, and astronomical observation.

Other cultural features are variously associated with Great Pueblo Period habitations in the McElmo Drainage Unit. These include: stockades, rock art, ovens, granaries, upright slab enclosures, check dams, and reservoirs.

During the Great Pueblo Period, a dramatic change in population distribution is reflected in the size and locations of habitation sites within the drainage unit. In the Sand Canyon locality, Adler (1990:8) has noted that Anasazi habitation sites from the 10th and 11th centuries (Pueblo II Period) were relatively dispersed and contained an average of six rooms. By 1175, the average site size had doubled, with the largest settlements containing more than 300 rooms. By the 13th century, settlements such as Yellow Jacket contained more than 600 rooms. At some of these 13th century sites, it appears that entire Anasazi communities are aggregating into a single settlement (Adler 1990:12).

As aggregation and village size increased through the Great Pueblo Period, settlements continued to be made up of the same simple architectural units which characterized the 10th and 11th centuries. Even some of the earliest researchers in the drainage unit (Prudden 1903; Morley and Kidder 1917:42) noted the similarities between late Anasazi pueblos and those occupied earlier. The large Pueblo III aggregated villages are often made up of identifiable roomblock clusters--distinct spatial units which contain a similar number of rooms and kivas as the architectural units that comprised the earlier dispersed communities (Adler 1990:13) (Figure 10).

Open surface pueblos in the drainage unit vary considerably in surface configuration. On smaller sites, often referred to as "Prudden units" (cf. Lightfoot et al. 1991:84) after explorer T. Mitchell Prudden who first recognized the typical Anasazi small site layout, an orientation of a block of surface rooms to the north, a kiva or pitstructure immediately to the south or southeast, and a trash midden to the south or southeast is commonly noted (cf. Fetterman and Honeycutt 1987) (Figure 11). As habitation sites get larger, the roomblock is sometimes formed into a crescent shape, surrounding the kiva on three sides. For very large sites, more complex configurations are observed. Varien and others (1990:2) note that large sites occupied after AD 1150 come in three general layouts. The first is a somewhat linear arrangement of spatially discrete residential roomblocks, such as Yellow Jacket Pueblo (Figure 9a). The second type consists of more nucleated settlements, with multiple-household roomblock groups more densely packed, the linear arrangement not as clear. An example of this layout is found at 5MT2803. Canyon rim pueblos, such as Easter Ruin and Pedro Point, comprise the third large site type, consisting of discrete roomblock groups constructed on canyon rims and the talus below the rim (Figure 12).

The later canyonhead ruins generally contain the same basic elements as open surface pueblos. They may, however, differ in orientation due to the

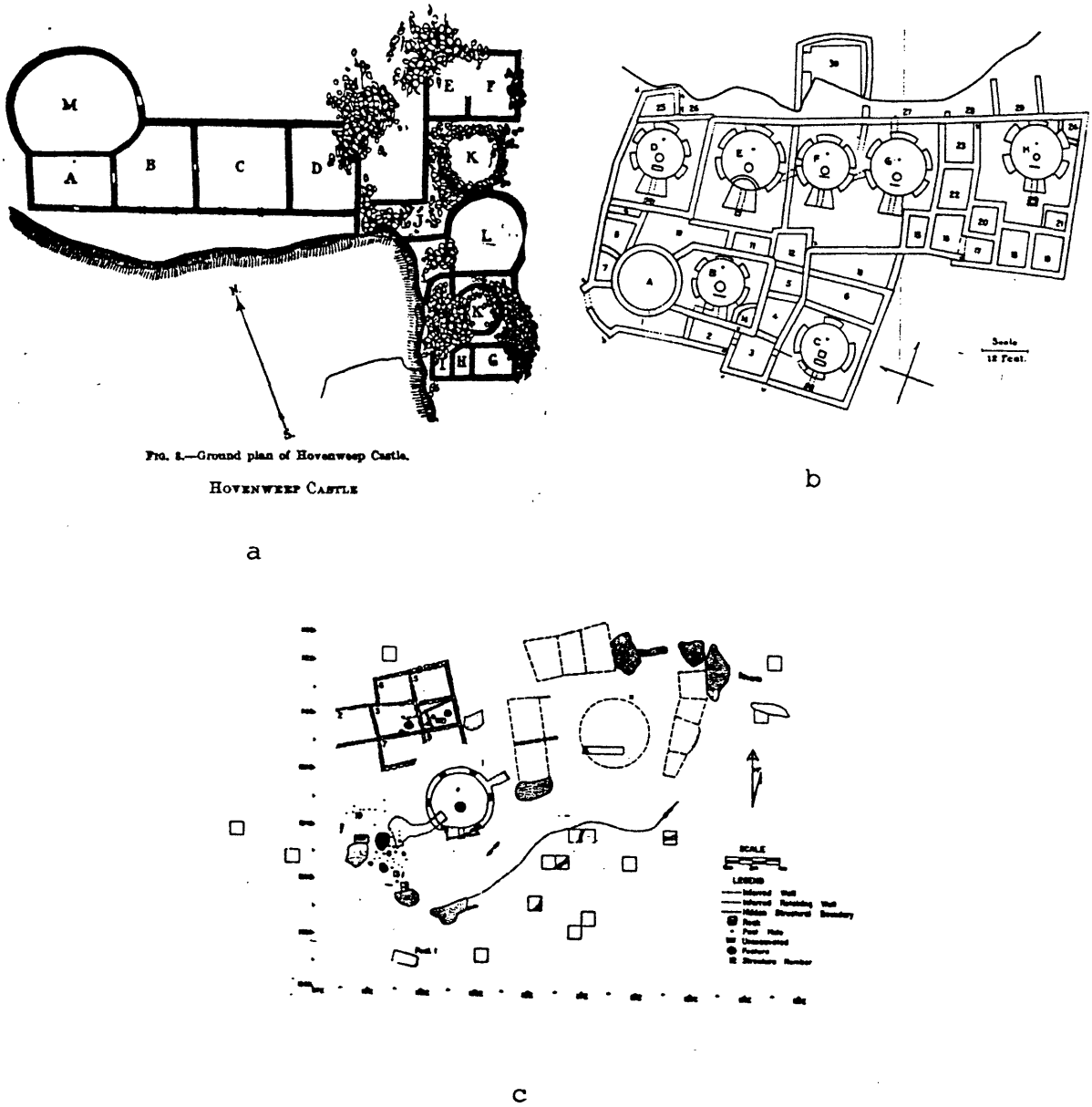
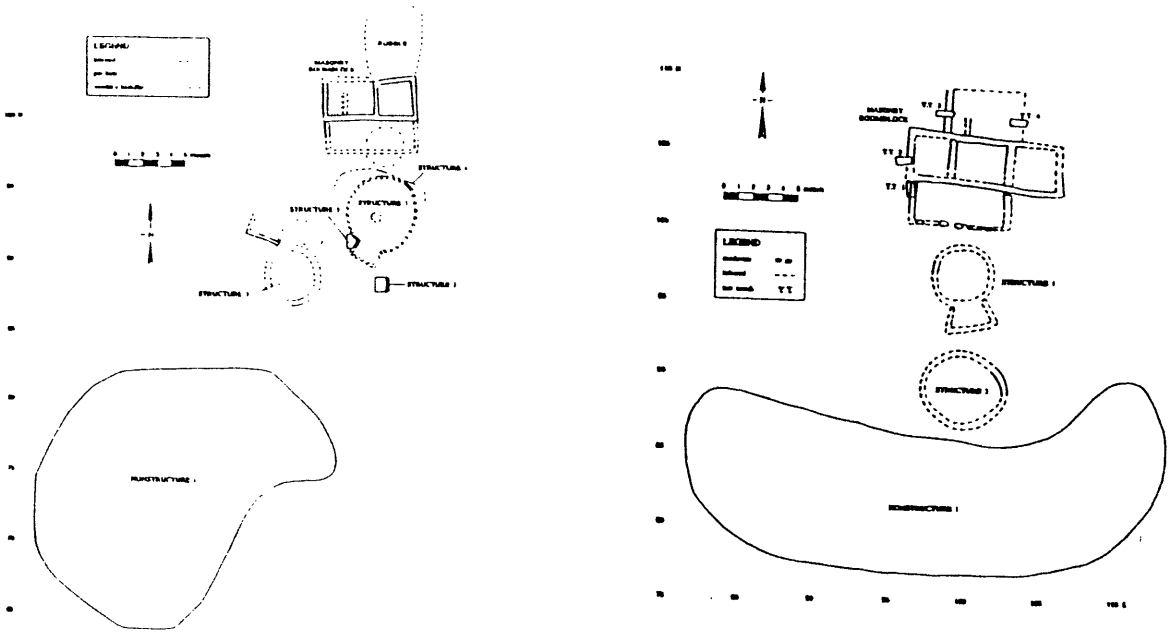


Figure 10. Site plans for moderate-sized habitations. a: Hovenweep Castle - Square Tower Group, Utah (from Fewkes 1919); b: Cannonball Ruin - 5MT 338 (from Morley 1908); c: Green Lizard - 5MT 3901 (from Huber 1989).



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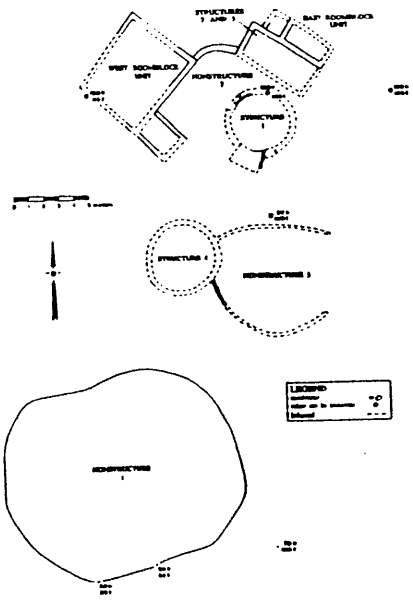

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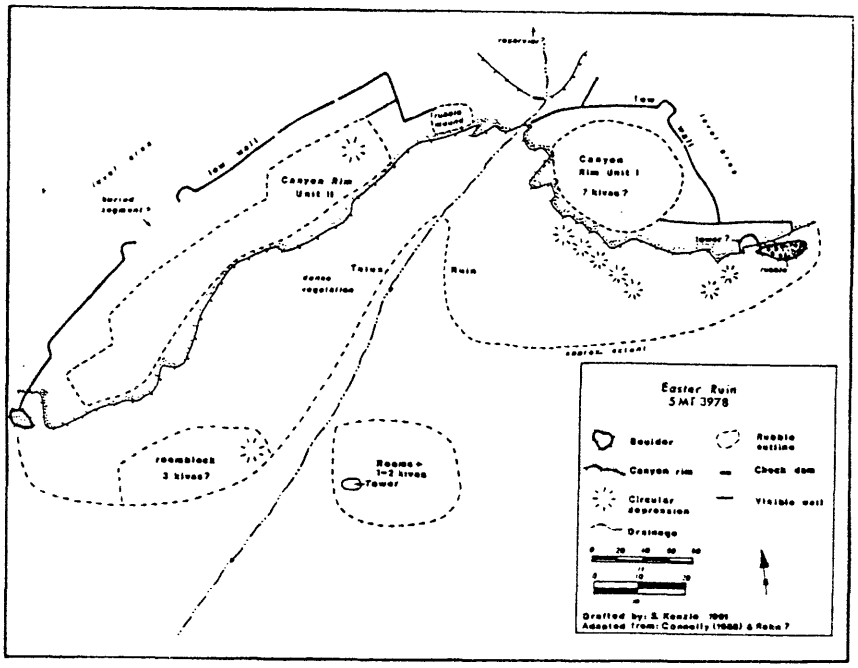
Figure 11. Site plans for small sites - Prudden Units.
a: Shorlene's Site -5MT3918, b: Roy's Ruin -5MT 3930
c: Lillian's Site -5MT 3936 (from Varien 1990)

a)



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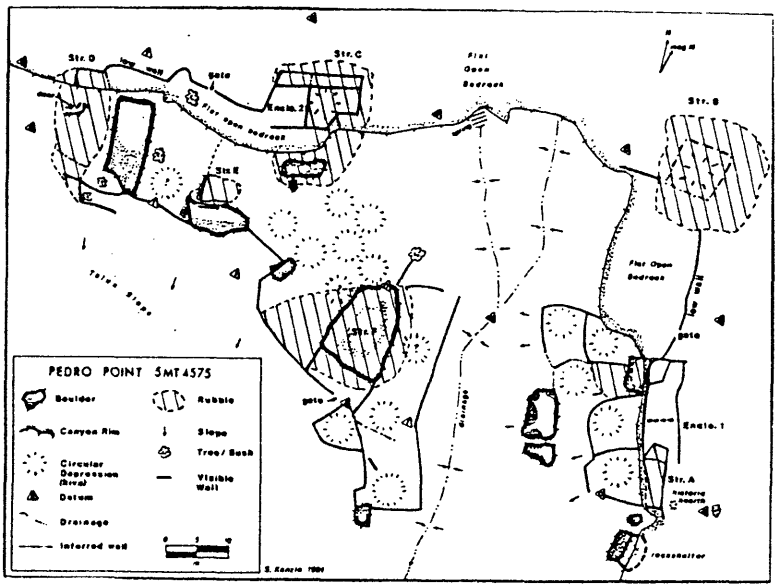


Figure 12. Canyonhead habitation sites. a: Easter Ruin - 5MT 3978, b: Pedro Point - 5MT 4575 (by Susan Kenzle).

limitations imposed by canyon head and talus slope locations (cf. Fetterman and Honeycutt 1984:77). Cliff dwellings also vary in size, but within the McElmo Drainage Unit they tend to be relatively small due to the small size of the natural sandstone overhangs available (Figure 13). They contain the same features as open sites: habitation rooms, kivas, and sometimes open areas and towers, with middens at the base of the cliff. In some cases, surface rooms or roomblocks are constructed in association with cliff dwellings, either at the base of the cliff, or at the top. In fact, a sharp distinction cannot be made between canyon rim, talus slope and alcove sites. Toward the end of the Great Pueblo Period sites frequently contain all structures on three landforms. "Boulder houses", as described by Morley and Kidder (1917:42), consist of masonry rooms which were built on top of detached sandstone boulders at canyon head locations, associated with canyonhead habitation complexes. They are a house type distinctive to the Great Pueblo Period and to the McElmo Drainage Unit.

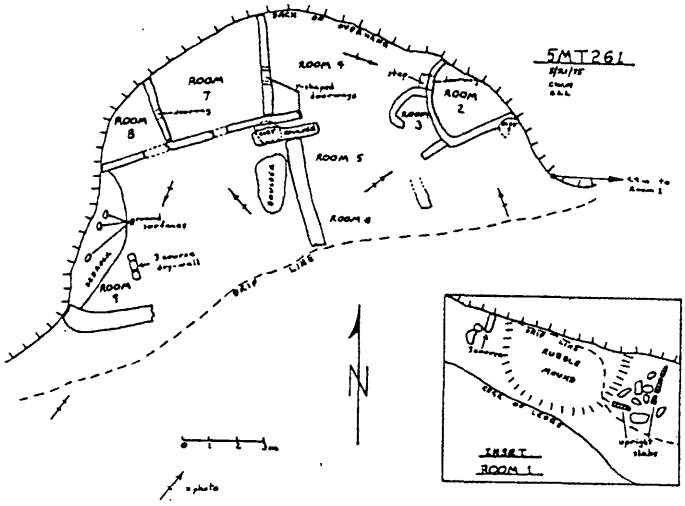
Within the Great Pueblo Period, there is a trend through time toward increased use of canyon rim, cliff face, and talus slope locations for habitation site placement (Lightfoot 1991:6; Fetterman and Honeycutt 1987:88-93). The period prior to AD 1200 sees a predominance of open habitation sites which are located in proximity to arable soils on the mesa tops away from the canyon rims. Among these were the communities surrounding the Chaco-related sites.

After AD 1200, increasing numbers of sites are located along the canyon rims and cliff alcoves within side drainages of McElmo Canyon. The largest 13th century habitation sites, including those with public architecture, occur at the mesa margins, especially at canyonhead spring locations. By the end of the period, from AD 1250 to 1300, most, if not all habitation sites are located at canyonhead springs, on the canyon talus slopes, benches, or in cliff alcoves within the side drainages of McElmo Creek.

Example: 5MT127 (cliff dwelling)

Site 5MT127 is a Great Pueblo Period cliff dwelling located in a small side-drainage of Sand Canyon. This habitation site was constructed within a fairly large alcove in the exposed Entrada Sandstone which forms a vertical cliff between the first and second terraces of Sand Canyon. Site 5MT127 is one of the largest and best-preserved of the Sand Canyon cliff dwellings. It has caught the attention of explorers and archaeologists since at least the turn of the century: a photograph of it is contained in T. Mitchell Prudden's 1903 report on the ruins of the San Juan drainage (Prudden 1903: plate 32, No. 2).

The ruin has since been recorded twice by the University of Colorado Mesa Verde Research Center: first in 1965 during an inventory of BLM lands (Lister 1966; Martin 1971), and again in 1975 during a ruins stabilization inventory



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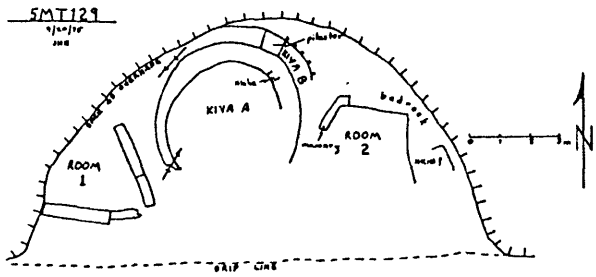

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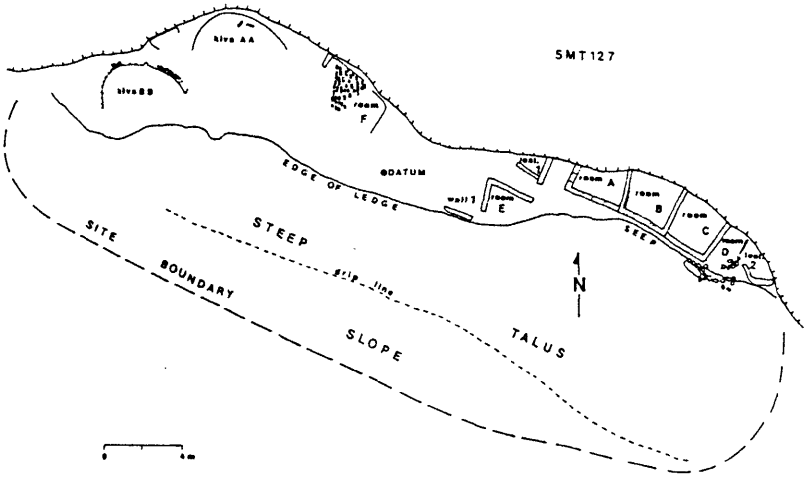


Figure 16. Plan Map of 5MT127, a cliff dwelling dated AD 1100-1300.

c

Figure 13. Plan views of cliff dwellings. a: 5MT 261; b: 5MT 129; c: 5MT 127 (a & b from Martin 1976; c is from Gleichman and Gleichman 1989).

for the BLM (Martin 1976). During Martin's 1975 inventory, a comprehensive architectural description was made, stabilization needs were described and prioritized, and a detailed photographic record and plan map were produced. The site was once again revisited, and an updated site form was prepared in 1988 by Native Cultural Services during their intensive inventory of lower Sand Canyon (Gleichman and Gleichman 1989). Although the ruin is relatively well-preserved, each visit has documented additional deterioration and vandalism. Some of the walls shown in Prudden's photo are now gone, including the walls of Room D, which have collapsed since 1965. Vandals have potted both kivas, knocked down coursing from Room E and Feature 1, and carved dates and names on the roomblock.

The cliff alcove at 5MT127 measures 38 meters long, east to west, with a maximum ledge width of 6 meters. Within this area are six masonry rooms, two kivas, one to two granaries, and a masonry wall (Figure 13c). A seep flows from beneath the floor of the overhang at the eastern end of the overhang. This source of water undoubtedly was a major attraction of the overhang, but its continual flow over the years has caused severe undercutting of the sandstone ledge at the base of the major architectural unit in the site. This architectural unit consists of three contiguous masonry rooms (A, B, and C) which form a well-preserved roomblock in the eastern portion of the overhang. These rooms remain intact, with the ceiling of the overhang forming their roofs. They are all single-story, measuring between 1.7 and 2.0 meters north-south, and 2.1 to 2.5 meters east-west, with a maximum wall height just under 2 meters. A fourth room (D), which has collapsed since 1965, and a masonry granary (Feature 2) were also attached to this roomblock, extending its length to the eastern edge of the overhang. At present, only a few foundation stones remain of Room D and the granary is only partially intact, but mortar remnants on the ceiling of the overhang indicate that the walls of these structures originally extended to the ceiling.

To the west and southwest of the roomblock are the partial remains of Feature 1, a small room of unknown function; Room E, a residential room which measured approximately 1.5 by 2.5 meters; and a wall remnant along the edge of the overhang floor. Room F, located in the central part of the overhang, contains a wall stub on the west side, and a rectangular recess which has been cut into the bedrock around the north and east sides, indicating a floor area of suitable size for a residential room. Deposition in this central area of the overhang may cover additional rooms or features. On the western edge of the overhang are two kivas which have been excavated into bedrock. Exposed portions of the westernmost, Kiva BB, reveal sections of masonry which were laid against the carved bedrock. Two badly deteriorating masonry pilasters are also exposed. This kiva is an estimated 4 meters in diameter. A carved depression in the northeast wall of Kiva BB may be a tunnel connecting the two kivas.

Room walls are formed of coursed sandstone blocks and slabs laid a single course wide. Variations in stone size and evenness of coursing are seen from room to room. Some shaping is evident in most building stones, and in most walls, the stone blocks are well-shaped, pecked, and fairly evenly coursed. A few stones are ground. Red mud from the area of the seep was used as mortar. Sandstone spalls and chunks were used for chinking. A brown mud wash remains on the south wall of the roomblock and is sporadically present on other walls.

For a site of this size there is relatively little midden present. A few sherds were recorded in 1988 on the steep talus below the overhang. Additional cultural debris may be buried in this area. A trash area west of Kiva BB was noted in 1965. At that time sherds, flakes, corncobs, burned corncob and beans, a possible yucca needle, and juniper bark and seed were collected from the site. Too few sherds have been recovered from the site to date the site with any great precision. The site is dated to AD 1100-1300, based on the range of ceramics observed and the presence of pecked and ground building stones.

Significance

Hundreds of Great Pueblo Period habitations sites are located in the McElmo Drainage Unit. Only a handful of these have yet been scientifically excavated. As the primary loci of prehistoric human activity, habitation sites are recognized as being highly important to our understanding of North American prehistory, and therefore, those sites which contain data on relevant research questions (or have yielded data important to our understanding of prehistory) are considered significant at the national, state, or local level. Properties of this type may be nationally significant due to their importance to research about southwestern U.S. prehistoric political and social development, population aggregation, and regional abandonment. Several of these properties are currently being considered for inclusion in the proposed Anasazi National Monument (National Park Service 1990). Locally significant habitation sites include those which contain data that will most likely address questions of local importance, such as defining activities or processes within a particular community or settlement. Properties of state significance will contain data appropriate to addressing regional questions. Areas of significance for habitation sites in the drainage unit include (1) architecture, (2) community planning and development, and (3) the study of prehistoric culture through excavation and analysis of physical remains. Properties of this type are eligible for inclusion on the National Register of Historic Places under Criteria A, C, and D.

Habitation sites may be considered eligible under Criterion A because they are associated with events that have made a significant contribution to the broad patterns of our history. They are the physical manifestations of human occupation and use during the final period of prehistory in the Four Corners

area. Many Great Pueblo Period habitation sites are also eligible for inclusion on the National Register under Criterion C, in that they are characteristic of late Anasazi residential and ritual architecture. Cliff dwellings with standing architecture are often protected from the elements and well-preserved, providing excellent examples of architectural style and methods of construction. Many open habitation sites are also well preserved, and like cliff dwellings, contain both scientific and interpretive value for their standing architecture and information on prehistoric community patterning.

Most habitation sites are eligible under Criterion D for their potential to provide data important to current research. Relative dating precision, and the extensive research which has already occurred in the American Southwest, have allowed archaeologists to address relatively sophisticated research questions compared to other regions of the western U.S. Research at Great Pueblo Period habitation sites is providing important data on the continuing debate over the level of social organization achieved by prehistoric southwestern communities prior to European contact. As the final period of Anasazi occupation in the San Juan drainage, Great Pueblo Period habitations also contain important data on the causes of abandonment of the region at ca. AD 1300. Habitation sites representative of both the early and late decades of the Great Pueblo Period, and sites representing both large and small communities are all important for the information they contain on various aspects of a settlement system which saw rapid change during the period in question. Chronological data continues to be important, so that changes which occurred during the Great Pueblo Period can be more precisely tied to a time scale and correlated with environmental changes.

There are a number of important questions which may be addressed through research at Great Pueblo Period habitation sites in the McElmo Drainage Unit. Some of these have been asked since the first archaeologists conducted their research in the drainage and remain unanswered, despite increased sophistication of methods. Many of the questions below are derived from ongoing research at the Crow Canyon Archaeological Center, the focus of which is community organization and abandonment (Lightfoot 1991).

Research in the McElmo Drainage Unit will be fundamental to understanding the purpose and cross-regional influence of the Chaco Interaction Sphere between AD 1075 and 1150. Concerning abandonment of the region, recent research by Carla Van West (1990) indicates that there was more than enough moisture and arable land to support a very large population in the McElmo Drainage Unit throughout the Great Pueblo Period. Van West (1991:148), however, also notes that if mobility and access to productive resources were severely restricted, and extensive extra-community food sharing was not regularly practiced, some smaller communities may not have been able to meet their demand for maize in certain years. These findings indicate that climatic fluctuations as they affected crop production cannot be considered the sole cause for the total abandonment of the

Mesa Verde Region at the end of the 13th Century. Possible limitations in other environmental resources (such as potable water shortages, wood resource depletion, soil nutrient depletion in pinyon-juniper woodland zones, and animal protein deficiency) and social factors need also to be considered, and that it is likely that some combination of these factors are responsible for the abandonment of the region (Van West 1991:148).

Many habitation sites also contain human burials which can be analyzed to obtain data on prehistoric demography, health, diet, ritual, and social ranking. Genetic relationships can be discerned through examination of dental and skeletal evidence. DNA extraction may provide additional genetic data where soft tissues or hair are preserved. The health and nutrition of prehistoric communities can be compared through space and time with techniques such as trace element analysis, in which even highly fragmented bone can provide important information on infection rates, patterns of infection, and possible disease organisms. These techniques may provide answers to questions about the quality of diet, vitamin deficiencies, and childhood stress, which combined with demographic data permits researchers to assess the relative level of adaptive stress within prehistoric communities.

Research Questions:

1. Why did aggregation occur to the extent it did during the Great Pueblo Period? What social or environmental factors were involved and why is this phenomenon epitomized in the McElmo Drainage Unit?

2. What were the processes and relative timing of aggregation? Did aggregation occur on the same time schedule throughout the drainage unit (as might be expected if it was a response to warfare), or did it occur at different times in different places, in response to changes in population density and the development of land tenure systems?

3. To what extent were small habitation sites controlled or influenced by the larger habitations with public architecture (i.e., "ceremonial centers") such as Sand Canyon Pueblo or Yellow Jacket Pueblo?

4. How can ceramics or other cultural remains be used to more precisely date individual components?

5. Were small habitation sites abandoned prior to the large aggregated villages (as is suggested by research in the Sand Canyon locality), or were the smaller cliff dwellings in lower McElmo Canyon and the

Hovenweep locality part of "the last bastion of Anasazi settlement within the unit" (as suggested by Eddy et al. 1984)?

6. What social and/or environmental factors contributed to the abandonment of the drainage unit and the northern San Juan?

7. What was the average use life of habitation sites, and to what extent were these sites occupied continuously, year round? Does this differ for small unit pueblos and large aggregated towns?

8. What depositional processes and post-depositional processes contributed to the remains we see today, and how does this affect our interpretation of the past?

9. What effect did the Anasazi have on the natural environment, and how did the natural environment affect the Anasazi adaptations and lifestyles?

10. What role did kivas play in the late Anasazi community? What is the range of activities conducted in kivas?

11. Did the well defined middens at habitation sites have physical embayments? What were the embayments made of? Do middens at unit pueblos differ qualitatively from middens at aggregated sites? Do they differ qualitatively from middens at habitations with public architecture?

12. What evidence is there for Chacoan influence at pre-AD 1150 small habitations in the drainage unit? What was the relationship between the local community and the Chaco outliers?

13. What was the relative importance of agriculture to the diet and economy, and what might have been the effects of 12th and 13th century climatic fluctuations on prehistoric agriculture and wild resource procurement?

Registration

Great Pueblo Period habitation sites in the McElmo Drainage Unit have considerable potential for yielding information important to our understanding of prehistory. Habitation sites with intact cultural deposits are eligible for inclusion on the National Register under Criterion D. Many of these sites have been disturbed through vandalism and/or unchecked deterioration and erosion, and even properties that are substantially disturbed may yet contain important data.

Additionally, disturbed deposits from single component sites have adequate integrity for addressing some research questions.

Intact cultural deposits are buried, relatively undisturbed remains which may include artifacts, ecofacts, architecture, and human burials. Those sites with undisturbed deposits will of course contain the greatest potential for addressing a wide range of research questions. Habitation sites from which all buried data have been removed, through complete excavation or vandalism, may also contain information on architecture and site layout.

Habitation sites may also be considered eligible under Criteria A and C if they have standing architecture with at least partially intact masonry walls exhibiting well-shaped or pecked stones. Excavated sites have integrity if they have been backfilled, sheltered, or stabilized. Unexcavated properties which remain relatively undisturbed are expected to meet the registration requirements for Criterion D, and possibly A and C, because they have been protected by the post-occupational deposition of soils.

Property Type: Temporary Habitation Sites

Temporary habitation sites are those sites with habitation architecture, but for which structure size and the associated artifact assemblage indicate non-permanent or seasonal use. They include agricultural fieldhouses and temporary shelters in overhangs. Temporary shelters may consist of isolated walls, sometimes of stone masonry architecture within smaller sandstone overhangs, or may merely be camps represented by smoke-blackened ceilings associated with artifacts diagnostic of the Great Pueblo Period. Rock shelters are located in sandstone overhangs within the side drainages of McElmo Canyon or in boulder outcrops on canyon rims or benches. These shelters and agricultural fieldhouses generally consist of isolated single room structures. Fieldhouses within the drainage unit "appear as either concentrations of small rocks, representing jacal and rock rooms, or small rubble mounds, representing horizontal masonry rooms" (Fetterman and Honeycutt 1987:103) They are most common on mesa top locations, on or near arable land (cf. Chandler et al. 1980:92; Fetterman and Honeycutt 1987:103), although they are occasionally noted in drainage bottoms (cf. Gleichman and Gleichman 1988:). Other short-term occupation sites are found in variable locations (Chandler et al. 1980:92).

Artifacts associated with temporary habitation sites include ceramics, lithics, and ground stone items. The abundance and diversity of material remains is generally substantially less than that for more permanent habitations, and is indicative of a shorter use life. No systematic studies of artifact assemblages at temporary habitations have been done to date within the drainage

unit. Extramural features associated with temporary habitation sites in the drainage unit, particularly fieldhouses, include artifact concentrations, hearths, and sandstone slab features.

Relatively few temporary habitations have been recorded in the drainage unit, when compared with more permanent habitation sites. Fewer than 2% of the recorded Great Pueblo Period sites in the drainage unit are identified as field houses, and even fewer are identified as temporary shelters in overhangs; however, many small rubble mounds have been recorded and some of these are likely the remains of fieldhouses or other temporary habitation sites. Temporary habitation sites are found throughout the drainage unit. In the Sand Canyon vicinity, an increase in the number of agriculturally related limited activity sites has been noted for the late 1100s (Adler 1990:12), but it is not known if this pattern exists throughout the drainage unit.

Example: 5MT10365

Site 5MT10365 is a temporary shelter site recorded in 1988 during a cultural resource inventory of BLM lands in lower Sand Canyon (Gleichman and Gleichman 1989). Surface manifestations of the site consist of the remains of a rectangular structure, a small area of charcoal stained soil, and a very few artifacts. The structure consists of a scatter of unshaped sandstone rubble. Alignments of unshaped sandstone blocks and spalls outline the south and east sides of what was a rectangular, single room structure measuring about 5 by 7 meters. The amount of rubble present indicates that this was at most a footing or foundation for a jacal superstructure. The large size of the room indicates that the superstructure may have been even less substantial, such as a ramada or brush shelter. The very sparse artifact scatter includes two flakes of quartzite, one of which is utilized. Two McElmo Black-on-white sherds, and seven unidentified white ware sherds are present, one of which is a ladle handle fragment. The structure is located on a broad upland terrace above the cliffs of Sand Canyon, at 5970 ft elevation. Its location and small size indicate ephemeral use, possibly as an agricultural field house.

Significance

As a part of the prehistoric subsistence-settlement system of the McElmo Drainage Unit, temporary habitation sites are significant properties in that they contain data needed to fully understand that system. Most archaeological research has focused on permanent habitation sites because of their large size and complexity and the diversity of material culture they contain, but temporary habitation sites also contain important data which cannot be obtained from the larger permanent habitations. Areas of significance for temporary habitation

sites include (1) architecture, (2) prehistoric agriculture, and (3) the study of prehistoric culture through excavation and analysis of physical remains. Temporary habitation sites containing data on relevant research questions are considered significant at the local or state level, and are eligible for inclusion on the National Register of Historic Places under Criterion D. Locally significant habitation sites include those which contain data that will most likely address questions of local importance, such as defining activities or processes within a particular community or settlement. Properties of State significance will contain data appropriate to addressing questions of more regional concern.

Research at temporary habitation sites within the drainage unit has been extremely limited to date. Through additional research these properties may provide data on the relationship of temporary habitations to more permanent residential sites, the seasonal patterning of activities, the spatial distribution of agricultural fields and agricultural-related activities, and the procurement of wild resources in areas away from permanent residential sites. Pollen analysis, macro-floral, and faunal remains from these sites may be critical to understanding the Great Pueblo Period resource procurement and processing.

Research Questions:

1. What types of activities occurred at temporary habitation sites?

2. How are temporary habitation sites (rock shelters and fieldhouses) related to the more permanent residential sites in the drainage unit?

3. Can single room habitations on agricultural land be assumed to be agricultural fieldhouses? What other functions might they have served?

4. How are agricultural fieldhouses distinguished from permanent habitations archaeologically?

5. Are there discrete discard or trash areas at temporary habitations?

Registration

Temporary habitation sites are significant for their potential to yield information important to our understanding of prehistory. Sites with intact

cultural deposits are eligible for inclusion on the National Register under Criterion D. Many of these sites have been disturbed through vandalism, deterioration, or erosion; however, if intact cultural deposits remain, they should be considered eligible. Intact cultural deposits are buried, relatively undisturbed remains which may include artifacts, ecofacts, architecture, and possibly human burials. Those sites with undisturbed deposits will of course contain the greatest potential for addressing a wide range of research questions. Temporary habitations, such as rockshelters, which retain none of their structural integrity and contain no subsurface remains or associated midden deposits, are considered not eligible. Even though highly disturbed properties do contain data applicable to research focused on settlement pattern and settlement system analysis, they are not considered eligible for inclusion on the National Register under Criterion D.

Property Type: Isolated ceremonial or communication structures

This property type includes towers, great kivas, kiva-towers, and kivas which are isolated or solitary. Other manifestations included here are "shrines", stone circles, and stone rectangles such as those known for Mockingbird Mesa (Fetterman and Honeycutt 1987), and dry laid circular structures such as those known for lower Sand Canyon (Gleichman and Gleichman 1989). These are special use sites which probably served a ritual or integrative function rather than as residential units. Often these features occur with habitation sites; sometimes they are in isolation, without direct association or close proximity to domestic structures.

The function(s) or range of activities conducted at these sites is not well understood. The lack of associated domiciliary rooms, and the location or placement of the sites has led many researchers in the Mesa Verde Region to label them as religious or ceremonial, especially isolated kivas, kiva-towers and towers (Nordenskiold 1893, Hayes 1964, Ferguson and Rohn 1987). Kiva-towers are defined as an architectural unit comprised of a tower and a kiva joined by a tunnel. Towers in particular have stimulated much conjecture, speculation, research and debate regarding their purpose (Riley 1950, Schulman 1950, Lancaster and Pinkley 1954, Winter 1977, 1981, 1984). Ceremonial use, defensive functions, and communication systems are the activities most often proposed. Winter's research in the Hovenweep area indicates that tower construction occurred between A.D. 1163 and 1277, with most construction after A.D. 1230 (1976:287-289). Based on test excavations at seven towers, Winter has noted that the structures called towers are an architectural rather than a functional category (1977:210). Early towers are linked to kivas by tunnels, and may have been primarily ceremonial. Architecture and function of towers changed through time, and later 13th century canyon head and canyon rim towers were multi-purpose, with different rooms showing differing functions such as storage, grinding, ceremonial use, processing

and manufacture, and cooking or habitation (1977:210-215). The towers may have also functioned as astronomical observatories (Williamson et al. 1977, Williamson 1978).

Kiva-towers are present in pueblos in the Mesa Verde Region, but also occur as solitary architectural units. Morris has suggested that the kiva-tower is a local specialization (in Martin 1929:33). In lower Sand Canyon, Great Pueblo Period habitation sites are cliff dwellings in alcoves of the Entrada sandstone. The only Great Pueblo Period surface architectural sites are two tower sites (5MT181 and 5MT2797) adjacent to the few patches of soil rated by the SCS as suited to crop production (Gleichman and Gleichman 1989). Testing of 5MT181 has revealed that it is a kiva-tower (see example discussion below), and 5MT2797 is probably also a kiva-tower. The presence of these isolated kiva-towers in association with productive soils may indicate that they are elaborate field-houses. Kiva-towers are evocative of female-male imagery, and in form and placement may have served a ritual or symbolic fertility function. The presence of relatively thin and small midden deposits at the sites indicates a range of activities were conducted, yet the sites are not full scale habitations, or if so, were only very briefly occupied. Two of the cliff dwellings in the area, 5MT261 and 5MT262, were constructed in association with circular towers. From these towers, each site could view at least two of the other tower sites, and all of the tower sites were probably inter-visible, forming a potential communication system.

Isolated ceremonial or communication structures comprise approximately 7% of the known Great Pueblo Period sites in the McElmo Drainage Unit. Most of the known sites are isolated towers and isolated kivas. Kiva-towers are known in very small numbers, but many isolated towers may in fact have kivas associated. At least nine great kivas are present in the drainage unit, but no isolated great kivas are yet known. Isolated great kivas do occur on the Mesa Verde, as do isolated towers, kivas, and kiva-towers.

Example: 5MT181 (Mad Dog Tower)

Site 5MT181 is a kiva-tower complex located in lower Sand Canyon. The tower stands 3.1 m high and is in a prominent location, so the site has been noted repeatedly by archaeologists working in the McElmo drainage. It was first documented and illustrated by T. Mitchell Prudden (1903:259, Plate xxiv, 2). J.W. Fewkes also visited and published a photo of the tower at 5MT181 (1919: 57, Plate 5a). The University of Colorado Mesa Verde Research Center (MVRC) surveyed lower Sand Canyon in 1965, and assigned the Smithsonian number 5MT181 to the tower (Lister 1966). George Kelley did some stabilization of the tower in the early 1970's (Kelley 1972). A ruins stabilization survey conducted by the MVRC in 1975 resulted in a comprehensive architectural description, stabilization

needs assessment, plan view map, and photographic record (Martin 1976). The tower was stabilized by the MVRC in accordance with Martin's recommendations in 1977 (Tipps 1978). The site was rerecorded by Native Cultural Services during an intensive survey of lower Sand Canyon in 1988 (Gleichman and Gleichman 1989). The site was tested by the Crow Canyon Archaeological Center in 1990.

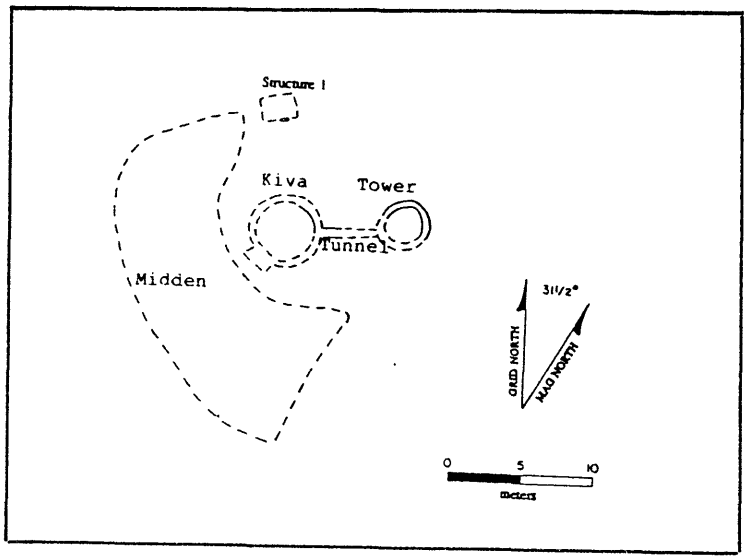
The tower was originally at least two stories tall. It currently stands a maximum of 3.1 m high, with an interior diameter of 2.55 m. The walls are two stones wide, ranging from 35 to 45 cm thick. The exterior face of the wall is mostly pecked block masonry, while the interior is mostly tabular and flaked sandstone. There is no evidence of roofing, and the floor appears to be unprepared native soil.

The excavations by Crow Canyon (Kleidon 1991) revealed that in addition to the tower there is a kiva and single surface room present (Figure 14a). The kiva is earthen with pecked block masonry pilasters and possibly a masonry lined southern recess. The floor is adobe plaster, and the bench face retains some plaster. The main chamber of the kiva is circular with an exterior diameter of 4 m. Testing uncovered three benches, a wall niche, firepit, possible sipapu, and a tunnel. The tunnel is 57 cm wide and 87 cm high, and apparently connects the kiva and the tower. The single surface room is approx. 1.9 m by 1.4 m, constructed of coursed, mostly unshaped sandstone. The floor is unprepared. Function of the room is unknown. The midden at the site has well defined boundaries, covers an area of about 120 sq. m, but is relatively shallow, with a maximum thickness of 0.5 m.

Significance

Isolated ceremonial or communication structures in the McElmo Drainage Unit have long been recognized as a rare and significant aspect of Anasazi prehistory. This little understood site type has received much attention through surface recording and stabilization efforts, but amazingly little work in the area of scientific excavation and analysis. Isolated ceremonial or communication structures are significant in the areas of (1) architecture, (2) communications, (3) religion, and (4) the study of prehistoric culture through excavation and analysis of physical remains. Properties of this type are eligible for inclusion on the National Register of Historic Places under Criteria A, C, and D. They may be significant on the national, state, or local level. The level of significance is dependent upon the geographic scope of the research questions that may be addressed.

Isolated ceremonial or communications structures may be considered eligible for inclusion on the National Register under Criterion A because they are associated with events that have made a significant contribution to the broad



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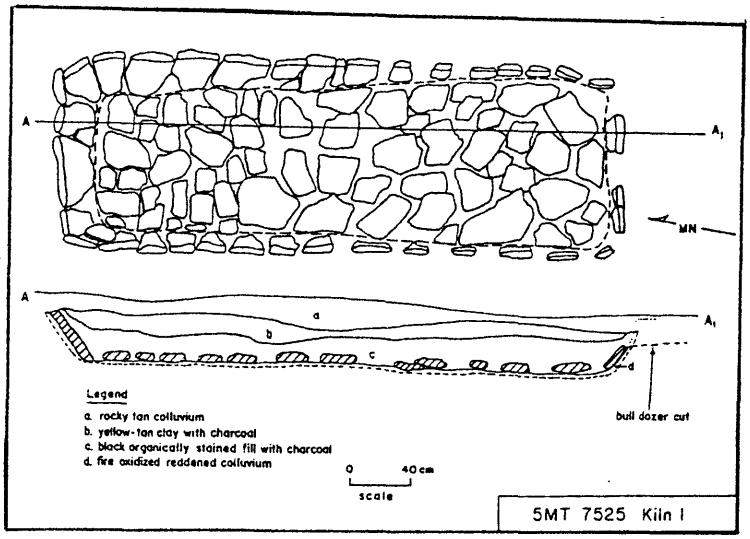

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Figure 14. a: Plan view of a kiva-tower site, 5MT181 (from Kleidon 1991); b: Plan and cross-section of Kiln 1 at 5MT 7525, a Great Pueblo Period kiln site (from Fuller 1984).

patterns of our history. They are the physical manifestations of human activity during the final period of prehistoric occupation in the Four Corners area. Many isolated towers or kiva-towers are also eligible for inclusion on the National Register under Criterion C, in that they are characteristic of a distinctive form of late Anasazi architecture. Although not often well-preserved, the remaining towers in the drainage unit embody important elements of architectural style and methods of construction.

Properties containing data on relevant research questions are eligible under Criterion D. A number of important research questions may be addressed through excavation and analysis of isolated ceremonial or communication structures, not the least of which is the appropriateness of this property type designation. Research by Joseph Winter (1977) in the Hovenweep locality has demonstrated that Great Pueblo Period towers functioned in a variety of agriculturally-related ways. Yet, the spatial patterning of these towers and their facility for observation or communication within and between communities has been mentioned by many researchers (Fewkes 1919, Kidder 1924, Schulman 1950, Lancaster and Pinkley 1954, Winter 1984). The following research questions address just a few of the important topics pertaining to isolated ceremonial or communication structures.

Research Questions

1. What function(s) did the architectural features identified as isolated ceremonial or communication structures actually serve? Were they primarily constructed for ritual use, communication between communities, or were they just elaborate fieldhouses?

2. What were the large dry-laid circular stone structures used for?

3. Were "isolated" ceremonial/communication structures actually associated with specific habitation sites or complexes of sites?

4. What was the range of activities conducted in kivas?

5. What purpose did tunnels connecting towers and kivas serve? Were they symbolic? Functional?

6. Are there qualitative differences in the middens from habitations and the middens or trash areas from isolated ceremonial structures?

7. If these sites are part of one or more communication network(s), what is the scope of these networks? What was the need for such a network?

8. Why the proliferation of towers in this area?

Registration

Isolated communication or ceremonial sites are highly significant properties. Many have the potential for yielding information important to our understanding of Anasazi prehistory. Properties of this type with intact cultural deposits have data potential and are therefore eligible for inclusion on the National Register under Criterion D. Many of these sites have been disturbed through vandalism and/or unchecked deterioration and erosion; however, if even small portions remain intact they likely contain important data. Even disturbed single component properties may contain data appropriate to certain research questions. Intact cultural deposits are buried, relatively undisturbed remains which may include artifacts, ecofacts, architecture, and human burials. Those sites with undisturbed deposits will of course contain the greatest potential for addressing a wide range of research questions. Isolated ceremonial or communication sites which have been completely excavated or vandalized may also remain eligible under Criterion D for the information they contain on non-residential architecture, settlement systems, or for data contained in architectural wood which can be submitted for tree-ring dating.

Isolated communication or ceremonial structures may also be considered eligible under Criteria A and C if they have standing architecture with at least partially intact masonry walls exhibiting well-shaped rectangular stones with pecked surfaces. Excavated sites have integrity if they have been backfilled, sheltered, or stabilized. Unexcavated properties which remain relatively undisturbed are expected to meet the registration requirements for Criterion D, and possibly A and C, because they have been protected by the post-occupational deposition of soils.

Property Type: Isolated Storage Facilities

The Northern San Juan Anasazi had a predilection for constructing extramural storage facilities. While the function of the structures is evident, the purpose of this property type in the settlement - subsistence system remains unexplained. These structures exist in two forms: cists, which are subterranean and generally slab lined, and above ground masonry granaries. Most storage structures are assumed to have been used for crops, probably principally corn, however other domesticates, ruderals, and wild resources could be stored. Other things could be stored, such as ceremonial paraphernalia, and gardening and domestic tools used during visits to or stays at fields might have been put in storage.

Storage facilities are one part of a post-harvest system. Storage facilities, and processing tools and facilities are essentially the only aspects of post-harvest systematics which leave an archaeological manifestation. All post-harvest systems involve some waste or loss of food. Attrition to harvested resources occurs through infestation of microorganisms or insects, loss to rodents or birds, contamination, exposure or spoilage, spillage during harvesting, handling, transport, threshing, or milling (processing). Loss of crops stored in extramural facilities can also occur through pilfering or raiding. The Anasazi possessed a well-developed storage technology which utilized ceramic vessels and masonry storerooms constructed as integral parts of habitation sites. Most processing also seems to have taken place in the habitation sites. Given the security and convenience of storage within the habitation site, questions arise as to the purpose of extramural storage.

Both cists and granaries occur within or in close proximity to habitation sites, but they also occur in isolation, as solitary features or clusters of features. They also occur in apparent rough association with other features such as reservoirs, check dams, and towers. Many granaries and cists are in hard to reach or hard to see loci, on cliff faces, built into small alcoves and cracks and in sandstone ledges, or under overhanging boulders. The placement of these structures may be in part an effort to disguise or camouflage their presence, and may in part be a convenience - the floors, ceilings, and rear and side walls of granaries can be the sandstone bedrock of the alcove, keeping the amount of stone masonry needed for construction to a minimum. Some granaries have sparse artifact scatters associated. Some small masonry alcove structures have soot blackened ceilings. This may be from earlier use of the alcove, or possibly the alcove may have served both for storage and temporary shelter or processing. One granary on Mockingbird Mesa contained a dozen grinding tools, thus some processing seems to have been conducted in extramural loci. While the facilities are difficult to date, researchers attribute most of the structures to the latter part of the Anasazi occupation (Chandler et al 1980, Fetterman and Honeycutt 1987).

The frequency of isolated storage structures, relative to habitation sites, in the McElmo Drainage Unit appears to be quantitatively less than in drainage units to the west, particularly the Canyonlands area. Within the drainage unit, extramural storage facilities are not common, comprising approximately 2% of the recorded Great Pueblo Period sites. The majority of the known facilities are masonry granaries, but cists are present. Extramural storage facilities may not be present in all areas of the drainage unit.

Example: 5MT935 (Granary)

Site 5MT935 is a small masonry structure built in an alcove below the east edge of Mockingbird Mesa, which forms the west rim of Yellow Jacket Canyon. The alcove opening is about 2 meters high by 2 meters wide. The structure consists of a curving masonry wall, which uses the top and back of the alcove to form an enclosed space. The space enclosed, from the masonry wall to the back of the alcove, is 2.5 meters deep. The wall is 1.5 meter high, from the ceiling to the floor of the alcove. The wall is well coursed sandstone slabs and blocks, about 30 cm thick. The masonry is wet laid, with chinking stones. The slabs and blocks do not show much shaping. An opening in the front of the wall is 50 cm wide and 60 cm high. Sandstone slabs and chunks of mortar are present on the floor of the alcove in front of the granary, which may have served to block the opening at one time.

Significance

As a part of the prehistoric subsistence-settlement system of the McElmo Drainage unit, isolated storage facilities are significant properties in that they contain data needed to fully understand that system. Although a great deal of research has been conducted at prehistoric habitation sites in the McElmo Drainage Unit, limited activity loci, such as storage facilities, have received little attention in the form of applied research. Nevertheless, these properties do contain important data on aspects of Great Pueblo Period culture which cannot be obtained from the larger habitation sites. Areas of significance for storage facilities include (1) architecture, (2) resource conservation and management, and (3) the study of prehistoric culture through excavation and analysis of physical remains. Storage facilities containing data on relevant research questions are considered significant at the local, state, or national level, depending on the scope of the research questions addressed. They are eligible for inclusion on the National Register of Historic Places under Criterion D.

Isolated storage facilities may be considered eligible for inclusion on the National Register under Criterion A because they are associated with events that have made a significant contribution to the broad patterns of our history. They are the physical manifestations of human activity during the final period of prehistoric occupation in the Four Corners area. Storage facilities, particularly granaries with intact masonry walls, may also be eligible for inclusion on the National Register under Criterion C, in that they are characteristic of a distinctive form of late Anasazi architecture. Although not often well-preserved, the remains of cliff granaries in the drainage unit embody important elements of architectural design and storage technology.

Data may be obtained through the excavation of subterranean storage cists or through the analysis of scant remains in cliff granaries, providing important information on prehistoric subsistence and on wild, ruderal, and domesticated resource processing and storage systems. A number of important research questions may be addressed through the excavation and analysis of these deposits. Through the analysis of pollen and macro-floral remains, data on the species collected and stored, and their relative abundance and importance to the Anasazi diet may be obtained. Research focused on extramural and intramural storage volume may be applied toward improving our understanding of prehistoric storage behavior. Analysis of the distribution of storage facilities may also provide information about land tenure. Understanding Anasazi post-harvest systematics will be integral to understanding aspects of Great Pueblo Period social organization and community structure such as redistribution.

The following research questions address just a few of the important topics which can be addressed through future research at Great Pueblo Period storage facilities.

Research Questions:

1. What is the distribution of isolated storage features? Is there an extramural storage system present in some areas of the drainage unit and absent in other areas? Can such facilities be tied to specific field locations? Are there temporal differences in the construction and use of storage facilities?

2. What was being stored by the Great Pueblo Period Anasazi? What was the "shelf-life" of the stored material?

3. Is there a difference between items stored in different types of facilities? Extramural vs. intramural facilities? Granaries vs. cists?

4. Were crops placed in storage mixed or segregated?

5. Do the deposits in storage facilities contain information on what types of microorganisms and insects preyed on stored crops?

6. What is the maximum storage capacity of individual facilities? What is the maximum momentary capacity of the extramural storage system? What is the maximum momentary storage capacity of intramural facilities?

Registration

Prehistoric storage facilities are significant properties. Many have the potential for yielding information important to our understanding of Anasazi prehistory. Both cliff granaries and subterranean storage facilities may contain intact cultural deposits, making them eligible for inclusion on the National Register of Historic Places under Criterion D. Many of these sites have been disturbed through vandalism and/or unchecked deterioration and erosion; however, if portions of the original contents remain intact, the facilities may still prove valuable sources of data. Even though the actual items stored are not present, micro and macrobotanical remains may be present which indicate the types of crops stored.

Intact cultural deposits are buried, relatively undisturbed remains which may include artifacts, ecofacts, and architectural elements. Sites with undisturbed deposits contain the greatest potential for addressing important research questions. Storage facilities which contain no remaining deposits still retain data important for settlement pattern studies, yet are not considered eligible under Criterion D. The may, however, be eligible under Criteria A and C. Cliff granaries eligible under Criteria A and C should exhibit intact standing walls. Temporal association with the Great Pueblo Period is sometimes difficult to ascertain in limited activity sites such as this, which may be lacking in associated artifacts. Nevertheless, the presence of distinctive stone masonry work or wooden beams which can be dated can provide the information needed to tie a site to this context. Subterranean storage features have integrity if they are unexcavated and relatively undisturbed because they have been protected by the post-occupational deposition of soil.

Property Type: Water and Soil Control Features

The Anasazi adaptation to the area was based on a set of complex plant-human relationships, involving direct manipulation of domesticated and ruderal plants and their habitats through cultivational techniques. The economy was based on agriculture in an area of fragile soils and wildly variable precipitation, resulting in the development of technologies for controlling these variables. Researchers are in agreement that these technologies developed during the PII-PIII period, with some asserting that they represent intensification of agricultural efforts.

Most water and soil control features known for the area are impoundment devices such as reservoirs, cisterns, check dams, and terraces. Some diversionary devices such as ditches/canals and diversionary dams are reported. Soil and water control was practiced for reasons other than agricultural, such

as erosion control near habitations (Woosley 1980), and monumental building such as the earthen mounds which are possible gateway or road entry features to the Wallace Ruin (Bradley 1988). By far the majority of known soil and water control features are agriculturally related.

Check dams serve as both water and soil control features. They consist of alignments of rock, sometimes coursed, placed perpendicular to the flow of small intermittent drainages. The dams stop eroding soil from washing down the drainage, and with soil buildup behind the dams, form small terraces which were farmed (Winter 1977). Terraces consisting of retaining walls producing flat areas on slopes are also present, apparently used to increase the amount of cultivable land.

Reservoirs have been known for the area since Prudden's (1903, 1916) and Fewkes (1919) explorations. Both artificially constructed reservoirs and rock tanks are known. Rock tanks are natural bedrock depressions which may have been deepened, some with earthen or masonry dams assisting with impoundment. Fewkes asserted that aboriginal reservoirs had been incorporated into current stock tanks by local ranchers (1919:64), and Winter's pollen cores from two "lakes" confirms this. Most reservoirs and tanks served to collect and store water, and were strategically placed to take advantage of surface water runoff (Haase 1985). Rim dams are present on the edges of mesa tops adjacent to talus slopes or cliffs, and may have functioned to retain water, allowing it to percolate down through the sandstone to recharge springs (Noisat 1976).

Irrigation ditches have been recorded at Hackberry House in Hovenweep National Monument (Winter 1977), Cannonball Ruins (Morley 1908), and at 5MT7548. Transport of water through ditches or canals never reached the level of sophistication in the Mesa Verde Region that was present in Chaco Canyon. The best known ditch system in the region is Far View Ditch and Mummy Lake on the Mesa Verde, and there is serious doubt as to whether Far View Ditch was actually a ditch at all. Ditches appear to have been a very minor form of water control in the area.

Much of the information regarding soil and water control systems and associated farm fields is from Winter's research at Hovenweep (1977, 1978), which indicates that a variety of crops were grown together in the fields. There are of course many types of fields which are not associated with discernible soil or water control features. The Hovenweep area may have a greater number and variety of soil and water control features than other areas. Virtually no evidence of direct Anasazi concern with controlling soil or water is present in lower Sand Canyon, for example (Gleichman and Gleichman 1989). Check dam systems of up to 24 dams in a drainage are known for the McElmo area; however, most recorded check dam sites have six or fewer dams, producing only very small areas of cultivable soil. Larger systems are known for the Mesa

Verde. Soil and water control features comprise only 3% of the known Great Pueblo Period sites in the McElmo drainage.

These features are often associated with habitation sites, but often occur in isolation or far enough from habitation sites to be recorded as separate sites. On Mockingbird Mesa, Fetterman and Honeycutt note that reservoirs were located near habitations while check dams were in positions more distant from habitations (1987:90). Proximity to known sites has been the main criteria for dating. Some reservoirs are constructed with walls of pecked block masonry, indicating a post-AD 1050 date.

Example: 5MT3986 - (Check Dams)

Site 5MT3986 is a series of 18 check dams placed across the bottom of a drainage which flows into Hovenweep Canyon. The dams are unevenly spaced along the drainage course from its head (upper end) to just before a deeply incised dropoff into the canyon, a distance of about 330 meters. Dams #1-9 are clustered at the west end of the drainage, just east of the drop-off into the Canyon. They are spaced along the drainage for 45 meters. Dam #10 is 95 meters east of the cluster, and dam #11 is 90 meters east of dam #10, leaving a fairly long stretch in the middle of the drainage without visible water/soil control. Another cluster of dams begins 25 meters east of dam #11. Dams #12-16 are spaced along the drainage for 35-40 meters. Dam #17 is 20 meters east of the end of this cluster, and dam #18 is about 10 meters from dam #17, near the upper end of the drainage.

Some of the dams appear to be complete, with coursing of unshaped sandstone visible. Some of the dams appear to extend for several meters across the drainage. Others appear to have been breached, with only the ends of walls remaining. Length and depth (height) of the dams is not ascertainable without excavation, due to soil deposition behind the dams, and vegetation growth.

Significance

As a part of the prehistoric subsistence-settlement system of the McElmo Drainage Unit, water and soil control features are significant properties in that they contain data needed to fully understand that system. Although a great deal of research has been conducted at prehistoric habitation sites in the McElmo Drainage Unit, very limited research has focused on prehistoric water and soil control features, with the exception of work by Winter (1977) in the Hovenweep locality. Water and soil control sites contain abundant information on prehistoric agriculture which cannot be obtained through excavation of other property types. Areas of significance for water and soil control features

include (1) agriculture, (2) resource conservation and management, (3) landscape architecture, and (4) the study of prehistoric culture through excavation and analysis of physical remains. Water and soil control features containing data on relevant research questions are considered significant at the local, state, or national level. Prehistoric reservoirs or other major works might be considered significant at the national level. Locally significant water and soil control features include those which contain data that will most likely address questions of local importance, such as defining local agricultural practices. Properties of state significance will contain data appropriate to addressing more regional concerns. Water and soil control features are eligible for inclusion on the National Register of Historic Places under Criteria A, C, and D.

Water and soil control features may be considered eligible for inclusion on the National Register under Criterion A because they are associated with events that have made a significant contribution to the broad patterns of our history. They are direct products of the Anasazi's struggle and eventual failure to control/survive in an environment marginal for an economy based on dry-farming agriculture. Certain water and soil control features are also eligible for inclusion on the National Register under Criterion C, in that they embody the distinctive characteristics of facilities constructed by the prehistoric Anasazi for water and soil control. Such properties might include masonry-lined reservoirs or cisterns, and well-preserved agricultural terraces and check dams. Often these properties are found in association with canyonhead habitation complexes and are an important part of the cultural landscape.

In his work in the Hovenweep locality, Winter (1977) demonstrated that substantial information related to subsistence and subsistence technology can be derived through research focused on defining prehistoric agricultural systems. Excavation of water and soil control features can provide important data on function, construction techniques, planting and cropping practices. Extensive pollen sampling can aid researchers in locating prehistoric agricultural fields which do not have structural remains. Information on land tenure may possibly be obtained through mapping the distribution of agricultural features.

The following research questions address just a few of the important topics which can be addressed through future research at water and soil control features.

Research Questions:

1. How did the use of water and soil control features change through time, and how does this relate to changing environmental conditions in the Mesa Verde Region?

2. How can water and soil control features be more precisely dated?

3. Can specific agricultural fields, terraces, reservoirs, or other features be associated with individual habitations other than through proximity?

4. Was the use of water and soil control features during the Great Pueblo Period a response to environmental instability or degradation, or the need to increase production for larger populations?

5. What purpose did reservoirs serve? Were they primarily a source of domestic water or agricultural? Might some structures which have been classified as "reservoirs" actually have served another function, e.g., some type of community assembly feature?

6. What crops were being cultivated, and how did this change through time? Were specific associations of crops grown in specific field types? What was the importance of ruderal plants which grew in cultivated/disturbed areas?

7. Are prehistoric reservoirs forms of public architecture (i.e., does their construction indicate a supra-community level of cooperation)?

8. Are there actual ditch systems which were used to divert or transport water?

9. What is the distribution of water and soil control features within the drainage unit, and why are the features present in some areas and absent in others?

10. Are check dam systems a good indication of agricultural intensification, or do they merely document some relatively minor part of the agricultural system, e.g., kitchen gardens?

Registration

Prehistoric water and soil control features are significant properties. Many have the potential for yielding information important to our understanding of Anasazi prehistory. Water and soil control features with intact deposits or structural features are eligible for inclusion on the National Register under Criterion D. Many of these sites have been disturbed through deterioration, erosion, and reuse by recent ranchers; however, if portions remain intact they may still be useful to research.

Intact cultural deposits are buried, relatively undisturbed remains which may include artifacts, ecofacts, architecture, and for properties in this category, macro and micro floral remains associated with cultural use. Those sites with relatively undisturbed deposits and structural features will of course contain the greatest potential for addressing research questions. Water and soil control features which are fully excavated are considered not eligible under Criterion D, although they do contain data important to settlement pattern studies.

Soil and water control features such as reservoirs, cisterns, and erosion control features may be considered eligible under Criteria A and C if they have standing architecture with at least partially intact masonry walls. Excavated sites have integrity if they have been backfilled, sheltered, or stabilized. Unexcavated properties which remain relatively undisturbed are expected to meet the registration requirements for Criterion D, and possibly A and C, because they have been protected by the post-occupational deposition of soils.

Property Type: Resource procurement or processing sites

This category contains a variety of functional site types, but also includes archaeological sites types such as artifact scatters, upright slab features, and burned rock and soil features, for which no specific function can be ascertained without excavation. Because of the difficulty of placing many of these sites into a specific functional site type, they have been grouped here as specialized procurement or processing sites.

Procurement sites within the drainage unit might include hunting camps or lookouts, loci of floral resource procurement, and clay and lithic quarries. Isolated processing areas include such phenomena as isolated hearths, roasting pits, some upright slab features (those not used for storage), pottery kilns, and honing surfaces. Other archaeological site types in this category, for which no specific function is known, include artifact scatters, or artifact scatters with associated hearths or burned soil, and what Fetterman and Honeycutt (1987:111) refer to as fire-associated processing areas, which from the surface are identified by the presence of either an ash and charcoal stain, a concentration of thermally-altered rocks, or an alignment of thermally-altered slabs. (Most of these sites are identified in the State files as either open camps or isolated features).

Clay quarries are rare throughout the region, an occurrence that some attribute to the fact that clay exposures often occur on steep eroded slopes (Fetterman and Honeycutt 1987:111). Two described by Fetterman and Honeycutt

(1987:111) are both located in protected rock shelters; on Mockingbird Mesa and in Yellow Jacket Canyon. Stone quarries are somewhat more common than clay quarries in the drainage unit, but all identified to the Great Pueblo Period are so identified due to their association with other features such as architecture or artifact scatters, and contain diagnostic artifacts or architectural features. Many additional stone quarries may be present, but not identifiable to the Great Pueblo Period, due to an absence of temporally diagnostic artifacts.

The surface manifestations of kiln sites have only recently been distinguished from "ceramic scatters" by researchers in the drainage unit. Excavations of kiln sites, such as those on Woods Mesa (Fuller 1984), have helped us to understand many aspects of Great Pueblo Period ceramic production in the McElmo Drainage Unit. Other sites thought to be isolated kilns have been recorded on the terraces of lower Sand Canyon, although none have yet been excavated (Gleichman and Gleichman 1989).

Resource procurement or processing sites are numerous, found in all topographic settings throughout the drainage unit, although in mesatop locations which have been cultivated, most of them have been inadvertently destroyed. Resource procurement or processing sites represent the loci of a variety of activities occurring outside of established habitation sites or villages. Some of these sites exhibit specific location characteristics which are distinct from those of habitations, since locations may be utilized which are not suitable for habitation sites. For example, the kiln sites on Woods Mesa are located on rocky, colluvial slopes, and primarily on north-facing exposures (Fuller 1984:44).

Example: 5MT7525 (Kiln Site)

Site 5MT7525 is a Great Pueblo Period kiln site located on Woods Mesa. The site was originally recorded in 1982 during monitoring operations for a Shell/Mobil Co2 YC-3 well pad (Bradley 1982). During that project four burned features were observed and through excavation, were determined to be kilns. Additional kilns and suspected kilns discovered in the vicinity caused researchers to later amend the site boundaries to include a 156 acre area. Five kilns associated with this site have been excavated by CASA (Fuller 1984:13), 11 others are identified from surface evidence, and possibly dozens more are contained within the 156 acre site boundary. The excavation and analysis of these kilns has provided important information on late Anasazi pottery manufacturing practices.

The kilns at 5MT7525 are all located in the bottoms of shallow north-flowing drainages of Woods Mesa. The excavated kilns are all shallow sub-rectangular pits, at least partially lined with stone slabs (Figure 14). Four

of the five are quite uniform in size, measuring between 1.0 and 2.0 meters wide, 3.6 to 5.2 meters long, and 0.34 to 0.45 meters deep. Kiln 5 is quite a bit smaller, measuring 1.85 by 0.9 meters and averaging 0.15 meters in depth (Fuller 1984:13).

The fill of these features indicated a two-stage firing process, with a small preliminary firing to heat and dry out the kiln (and possibly the unfired vessels), and the actual firing in which vessels were placed in the kiln, covered with large 'cover sherds', then piled with an abundance of fuel wood and fired under intense heat. Fragmented pottery recovered from within and around the kilns made up the only artifacts on the site. A successful firing left little pottery; a poor one left substantial amounts. Larger sherds from broken vessels would be salvaged from kilns for future use as cover sherds. Pottery was nearly all McElmo and Mesa Verde Black-on-white, and included bowl fragments, jar sherds, and dipper handles. Kiln 5 contained whiteware bowls along with three grayware ollas. Based on ceramic cross-dating, the kilns all date to the 13th century.

Significance

Resource processing and procurement sites in the McElmo Drainage Unit are unspectacular when compared with the large townsites and cliff dwellings which define the Great Pueblo Period, but they do, nonetheless, contain information important to our understanding of the regional subsistence-settlement system. Resource processing or procurement sites which contain data on relevant research questions will generally be considered significant at the local level, and are eligible for inclusion on the National Register under Criterion D.

Large numbers of resource processing and procurement sites are found within the McElmo Drainage Unit. A great range of activities appears to be represented by the various properties which fit into this category, and it is important to recognize the diversity of this property type and the fact that these properties contain differing areas of significance.

Areas of significance for resource processing or procurement sites include (1) technology and (2) the study of prehistoric culture through excavation and analysis of physical remains. Because of the range of functions associated with isolated processing or procurement sites, properties in this category may provide important data on a number of research topics. Yet, the number of topics that may be addressed through research at any individual property is probably small. Research at the limited activity sites within this property designation can provide information on aspects of the subsistence and settlement system that cannot be obtained from habitation sites. The size, numbers, and distribution of procurement sites, such as hunting camps and floral procurement loci, provide

important data for defining the area utilized by a prehistoric community and for defining many aspects of the cultural system. Further data recovery at these sites can provide us with information on subsistence practices, resource utilization, technology, and seasonality of use.

Processing sites, such as isolated kilns, have provided researchers with data relevant to questions of ceramic and firing technology. Excavation of kiln sites proposed by the Crow Canyon Center for the summer of 1991 seeks to address a variety of issues, including whether individual kilns were used only once or repeatedly; what kind of fuel was used; and the variability of ceramics from one production site (Crow Canyon 1991).

Only through excavation of a reasonable sample of the limited activity loci in this property type can we begin to fully understand the nature of these phenomena, how they relate to the settlement system as a whole, and how the system changed over time.

Research Questions:

1. How important were wild plant and animal resources to the diet and economy of Great Pueblo Period peoples in the drainage unit? How did their importance or availability change through time?

2. What activities are represented by the artifact scatters and artifact scatters with burned soil/hearth features that are so commonly found in the drainage unit? What is the association, if any, of these sites to nearby habitations? Can surface signatures be distinguished that can allow us to more specifically identify functions for these sites during inventory?

3. What function did isolated upright slab features (i.e., roasting pits?) serve and why are they so commonly located away from habitation sites?

4. What range of variability is there in Great Pueblo Period ceramic kilns, and was ceramic production a complex technology used by specialists?

5. Can isolated lithic procurement and reduction sites be identified for the Great Pueblo Period? How can they be dated?

Registration

Resource procurement and processing sites are significant for the information they contain on specific activities which were carried out away from the primary place of residence. Any resource procurement or processing site with intact cultural deposits is eligible for inclusion on the National Register of Historic Places under Criterion D. Many of these sites have been disturbed through unchecked soil and water erosion or amateur artifact collection; yet, if portions of a property remains intact it may still contain data important to archaeological research.

Intact cultural deposits are buried, relatively undisturbed remains which may include artifacts, ecofacts, architecture, and human burials. Those properties with undisturbed deposits will of course contain the greatest potential for addressing research questions. Unexcavated sites which remain relatively undisturbed by erosion or vandalism are expected to retain their integrity because they have been protected by post-occupational deposition of soils. Resource procurement and processing sites which have been completely excavated or vandalized are not considered eligible.

G. Summary of Identification and Evaluation Methods

Discuss the methods used in developing the multiple property listing.

[x] See continuation sheet

H. Major Bibliographical References

[x] See continuation sheet

Primary location of additional documentation:

- [ ] State historic preservation office
- [ ] Other State agency
- [ ] Federal agency
- [ ] Local government
- [ ] University
- [x] Other Anasazi Heritage Center

Specify repository: _____

I. Form Prepared By

name/title Carol L. Gleichman and Peter J. Gleichman

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G. SUMMARY OF IDENTIFICATION AND EVALUATION METHODS

The Great Pueblo Period in the McElmo Drainage Unit is a refinement of the Southwest Colorado Prehistoric Context which was identified in the statewide planning process (RP3). Identification of the Great Pueblo Period Context in the McElmo Drainage is based on extensive archaeological research which relates a common theme, place, and time. A long history of investigation, beginning with the Hayden surveys of the mid-1870's and continuing through the present, has indicated that the Great Pueblo Period was a time of substantial socio-cultural change and development involving a local agriculturally-based economy in a regional system and later aggregation(s) of population into towns and villages with distinct monumental or public architecture. While these cultural developments are not limited to the McElmo Drainage Unit, the McElmo drainage is the core area of the phenomenon.

Information for this document was obtained primarily through the collection and synthesis of existing data. Published literature, unpublished reports, Colorado State site files, Bureau of Land Management site files, and consultation with archaeologists actively involved in research on the Great Pueblo Period were major sources of input. In addition, a reconnaissance survey was conducted in two phases during which representative property types were visited and evaluated in the field. For properties which were visited and used as property type examples, additional data were collected, including the updating of Colorado's state site forms and the assessment of their current condition.

The typology of significant property types is based on function and association with the Great Pueblo Period cultural system. The specific property types are recognized site type categories which have developed out of the continuing professional archaeological research in the area. The property types are inter-related in that each forms a component of the cultural system known as the Great Pueblo Period culture and a complete understanding of this culture requires the examination of all of the components.

The standards of integrity were based on the National Register standards for assessing integrity. Information on the conditions of existing properties, as well as survey and excavation data in the research literature, formed the basis for assessing the relative condition, abundance or scarcity, and information content of properties in the context.

ARCHAEOLOGICAL INVESTIGATIONS

The history of archaeological investigations in the McElmo drainage and adjacent areas of the Northern San Juan culture area has been detailed and

updated several times (Brew 1946, Herold 1961, Nickens 1982). A history of investigations more specific to the McElmo drainage was compiled by Chandler et al. (1980), and a history of research in the Crow Canyon Archaeological Center's Sand Canyon Locality is in Van West and others (1987).

While archaeological investigations in the drainage unit have dealt with earlier cultural periods, most of the investigations have been concerned with Great Pueblo Period sites. The ruins in the area were first documented and publicized by explorers and surveying parties. W.H. Holmes and W.H. Jackson of the Hayden Survey both mapped and illustrated ruins in the mid-1870's (Holmes 1878, Jackson 1878). Lewis Henry Morgan also recorded and described sites at the head of McElmo Canyon (Morgan 1881).

During the next 30 years, most attention and activity centered on the large cliff dwellings of the nearby Mesa Verde, where perishable remains could be recovered. A substantial amount of undocumented looting of the ruins in the McElmo drainage was taking place - T. Mitchell Prudden, the first to conduct scientific excavations in what he termed the McElmo Group, noted that by the first years of the 20th century a large proportion of the "burial mounds" (middens) associated with ruins in the area had been partially or completely destroyed by pot-hunters (1903:258). In 1913 and 1915 Prudden excavated at seven sites in the drainage unit (1914, 1918).

Edgar L. Hewett of the School of American Research sponsored a survey of the Great Pueblo Period sites in the drainage unit, conducted by Sylvanus Morley and A.V. Kidder in 1907 (Morley and Kidder 1917), and sponsored excavation at Cannonball Ruin (Morley 1908).

In 1917, under the auspices of the Bureau of American Ethnology, Jesse W. Fewkes conducted reconnaissance survey in southwestern Colorado, including the McElmo drainage. His report (1919) contains descriptions and illustrations of numerous ruins.

Beginning in 1928, Paul S. Martin of the Colorado Historical Society began a program of research in the Pleasant View (Ackmen) area. Excavations were conducted at the Herren ruins group and at the Charnel House site. In 1929 work was conducted at Beartooth Pueblo and Little Dog ruins. Martin had a particular interest in the kiva-tower units connected by tunnels (Martin 1929, 1930). During 1930-31 and 1933-34 Martin investigated the Lowry Ruin and associated great kiva, with sponsorship by the Field Museum Archaeological Expedition to the Southwest. Martin recognized and discussed the Chacoan characteristics of the site (1936). Additional work was completed at sites in the area which predate the Great Pueblo Period, and a survey of the Lowry area was undertaken (Lloyd 1938).

In 1931 Western State College conducted excavations at a site which is probably the Yellow Jacket Ruin (Hurst and Lotrich 1932). Both I.F. Flora and Deric O'Bryan of Gila Pueblo, a private archaeological research institution, collected tree ring samples from late pueblo sites in the McElmo drainage during the early 1940's. Excavations were also undertaken at the Cahone Ruin (Guthe 1949, Tobin 1950), sponsored by Ansel Hall, owner of the ruins.

In 1948 the five areas of the Hovenweep National Monument were surveyed (Riley 1948). Riley also published a survey of "defensive structures" at Hovenweep, consisting of true towers and great houses (Riley 1950). Albert Schulman published a study of southwestern towers in 1950, concluding that towers in the McElmo drainage functioned as watch towers, lookouts, and defense units.

The University of Colorado Museum, under the direction of Joe Ben Wheat, has conducted field schools at several sites along Yellow Jacket Canyon for most years since 1954 (Brown 1970, Wheat 1955, 1984). The C.U. Mesa Verde Research Center conducted systematic inventory of 278 square miles of public land between 1965 and 1969, recording 1,587 archaeological sites (Martin 1971). The Ft. Lewis College field school, directed by John Ives, excavated three early PIII sites and one small late period cliff dwelling on Mockingbird Mesa in the early 1970's. Grinnell College conducted field school excavations, directed by Ralph Luebben, at the Grinnell and Ismay sites near Yucca House in 1971 and 1974 (Luebben 1983). Colorado Mountain Jr. College conducted a field school excavation at 5MT3807 between 1974 and 1977. This site is believed to be the one from which a Mexican copper bell was recovered (Hayes and Chappell 1962), the northernmost occurrence of this type of trade item. Adler (1988) has summarized what information is available from the Colorado Mtn. Jr. College efforts.

Between 1974 and 1977 excavation was conducted at the Mustoe site (5MT3834) under the supervision of Arthur Rohn and Ronald Gould (Gould 1982). From 1974 to 1976, San Jose State University carried out research in the Hovenweep area under the direction of Joe Winter. Survey was conducted, resulting in the recordation of 404 sites. Investigations were also conducted regarding agricultural features and towers in the area. The research in farm fields and soil and water control features is a unique and invaluable contribution to our understanding of late period adaptations. Winter sees a marked shift in settlement to the springs and canyonheads after A.D. 1200, with abandonment by A.D. 1280 (Winter 1974, 1975, 1976, 1977, 1978, 1981, 1984).

The C.U. Mesa Verde Research Center has conducted numerous projects in the drainage unit and adjacent areas. A ruins stabilization inventory and assessment of the towers and cliff dwellings in lower Sand Canyon, Rock and East Rock Canyon was completed in 1975 (Martin 1976). Stabilization was carried out at 5MT264 in East Rock Canyon, 5MT181 in Sand Canyon, Cannonball Ruin, McLean Basin Towers, Lowry Ruin, and the Sand Canyon Pueblo cliff dwelling over the next few years

(Tipps 1978, White and Breternitz 1976). Excavation and stabilization was also conducted at the Escalante and Dominguez ruins, on the divide between the McElmo and Dolores drainage units (Halasi 1979, Reed 1979).

Investigations are being conducted by Bruce Bradley (1974, 1988) at the Wallace ruin, a multistory, multi-component site with Chacoan affiliations. A stratified random sample of the BLM's Sacred Mountain Planning Unit was conducted by Centuries Research in 1978 and 1979, resulting in a predictive model of site location (Chandler et al 1980). The last 15 years have also seen a large number of cultural resource management surveys associated with energy development. These surveys are generally small block or linear in nature.

The most ambitious and extensive recent research project is the ongoing Crow Canyon Archaeological Center's study of community organization and dynamics, and abandonment in the Sand Canyon Locality (Lightfoot 1991). Excavations have been conducted at Sand Canyon Pueblo, a large canyonhead aggregate, and at the Green Lizard Hamlet. Test excavations are being pursued at several small sites, and intensive survey has been conducted in the upland areas around the Sand Canyon Pueblo. Some 6400 acres were inventoried in 1986 and 1987 with 429 sites (477 components) recorded (Van West et al 1987, Adler 1988).

The BLM has conducted or sponsored several projects in the drainage unit. Almost 4000 acres on Mockingbird Mesa were intensively inventoried between 1981 and 1984, with 684 sites recorded (Fetterman and Honeycutt 1987). A survey of 900 acres in lower Sand Canyon was conducted by Native Cultural Services in 1988. This area is within the Sand Canyon Locality. Thirty seven new sites were located and recorded, and 16 previously recorded sites were relocated and evaluated (Gleichman and Gleichman 1989). Several kiln sites were excavated on BLM land on Wood's Mesa in 1982 and 1983, as part of the Shell Oil Co.'s CO2 project. More recently, 4090 acres of BLM land in the Hovenweep area, 2,540 acres of which are in Colorado, were inventoried. Total sites recorded were 372, 261 of which are in Colorado (Greubel 1991).

The prehistory of the McElmo Drainage Unit has interested professional archaeologists and the general public for over 120 years. Much of the interest has centered on the Great Pueblo Period, stimulating numerous research and cultural resource management projects both large and small. The research conducted in the drainage unit has been important to our understanding of Northern San Juan Anasazi culture history, material culture, architecture, and settlement and subsistence. The scope and configuration of the Great Pueblo Period manifestations are extensive and complex, and considerably more research is needed to document the culture history of the area and understand the processes involved.

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