Chapter 2

History of Investigations

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Introduction

1

The research at Sand Canyon Pueblo (Site 5MT765) was a major component of the Crow Canyon Archaeological Center's Sand Canyon Archaeological Project. This project also included intensive excavations at a small site (Green Lizard) and a medium-size site (Castle Rock Pueblo), probabilistically designed test excavations at numerous small sites, intensive survey of approximately 30 km² in the Sand Canyon locality, and paleoenvironmental modeling (Lipe 1992*1). Several published accounts cover aspects of the history of research at Sand Canyon Pueblo in the context of the larger regional project. The 1992 Sand Canyon Archaeological Project progress report (Lipe 1992*1) devotes a chapter to the excavations at Sand Canyon Pueblo (Bradley 1992*2), and various components of the larger project are described in other chapters.

2

In their introduction to an extensive report on the site testing program (Varien 1999*2), Varien and Kuckelman (1999*1) detail the history of this component of the Sand Canyon project and show how it relates to the intensive excavations at Sand Canyon Pueblo. Adler (1990*5, 1992*3) reviews survey work in the vicinity of Sand Canyon Pueblo. A recent book on Crow Canyon's long-term research in the Mesa Verde region (Varien and Wilshusen 2002*2) includes a chapter on the development of Crow Canyon's research program (Varien and Wilshusen 2002*1) and on the excavations at Sand Canyon Pueblo (Ortman and Bradley 2002*1).

3

Crow Canyon's commitment to pursuing a cumulatively productive research program focused on the Pueblo II and Pueblo III periods in southwestern Colorado has been maintained since 1983 (Varien and Wilshusen 2002*1). The Sand Canyon Archaeological Project (1983–1993), of which the Sand Canyon Pueblo excavations were a major element, was followed by the Village Mapping Project (1993–1995). The mapping project was followed by the Village Testing Project (1994–1997), which consisted of limited excavations at Woods Canyon Pueblo, Yellow Jacket Pueblo, and the Hedley Site Complex (Ortman et al. 2000*1). From 1997 through 2004, the Center's work was guided by an overarching research design titled "Communities Through Time: Migration, Cooperation, and Conflict," which resulted in excavations at Shields Pueblo in the Sand Canyon locality and at Albert Porter Pueblo in the Woods Canyon locality (Varien and Wilshusen 2002*1). Beginning in 2005 and continuing to the present, the Goodman Point Archaeological Project builds on the preceding community studies and involves excavations at the large village of Goodman Point Pueblo and surrounding smaller sites.
The primary goal of this chapter is to provide a more detailed narrative of the history of investigations at Sand Canyon Pueblo than is currently available. Secondarily, the chapter will briefly relate this research to the larger contexts provided by the Sand Canyon Archaeological Project.

**Background History**

In the 1870s, surveyors of the Hayden Exploring Expedition recognized and began to document the extraordinary concentration of large, well-preserved archaeological sites of what now is known as the Pueblo III period in the McElmo drainage (Holmes 1878*1; Jackson 1876*1, 1878*1). However, their surveys were largely confined to the major valleys. Sand Canyon Pueblo is one of the largest of the McElmo sites, but it lies in the uplands and was not mentioned in the literature until the turn of the century, when pioneering archaeologist T. Mitchell Prudden recorded it in his remarkable reconnaissance of the "prehistoric ruins of the San Juan Watershed" (Prudden 1903*1).

In a section of his article devoted to the "Ruins of the McElmo Group," Prudden (1903*1:259) describes several clusters of sites in the Upper McElmo drainage, then notes that

Coming into the McElmo from the high mesa north is a series of short rugged canyons. Several of these, notably Sand Canyon and Rock Canyon, contain numerous small, well-built cliff houses. . . . At the heads of two of [the] side canyons of the McElmo are large ruins built upon the edge of the cliffs and partially down the slopes. These ruins stand virtually upon the top of the great mesa bordering the McElmo to the north. One is known as the Goodman Point or Goodman Lake Ruin; the other is, so far as I know, without special name.

After briefly describing the Goodman Point Ruin, Prudden (1903*1:260) describes the "Unnamed Ruin on the Mesa West of Goodman Lake":

. . . a few miles west of Goodman Point and at the head of one of the short canyons leading down to the McElmo, is a ruin of considerable size. Here, as in the Goodman Ruin, there are two large blocks of rooms separated by a wash. These blocks are several rooms deep and may have risen two or three stories. Behind one of the groups, distant about four feet, is a wall somewhat fallen but originally three or four feet high. Two small cliff houses are placed beneath the overhanging ledge upon which one of the great houses stands. The dimensions of this ruin I failed to obtain, but it is considerably smaller than the Goodman Ruin.
In a footnote, Prudden notes that he is "not certain upon which of these canyons this ruin is situated, since I have not descended at this point, but it is, I think, the one lying between Trail and Mitchell Canyons" (Prudden 1903*1:260). His map (Prudden 1903*1:Plate XVI) shows several short McElmo tributaries lying east of Sand Canyon: first, Mitchell Canyon, then an unnamed canyon, and then Trail Canyon. He does not identify any of these as Goodman Canyon. Modern topographic maps show only one substantial canyon—Goodman (with Goodman Point Ruin at its head)—between Trail and Sand canyons. It seems likely that Prudden, who did not have detailed maps to guide him, simply erred in his placement of the "unnamed large ruin," which almost certainly is Sand Canyon Pueblo.

Prudden's statement that the unnamed ruin is considerably smaller than Goodman Point Ruin is also inaccurate, unless he was including with the latter the several roomblocks lying just north of the main group of Goodman Point ruins. The surface evidence of fallen walls is somewhat more obscured by pinyon-juniper woodland at Sand Canyon than at Goodman Point, but the sites are in fact similar in number of structures. Prudden visited and located on his map many hundreds of sites over thousands of square miles, so it is not surprising that he did not, on the basis of what undoubtedly was a brief visit, get every detail correct.

In 1917 and 1918, Jesse Walter Fewkes conducted brief archaeological reconnaissances of portions of southwestern Colorado and southeastern Utah. He had previously excavated several sites in Mesa Verde National Park (e.g., Fewkes 1909*1, 1911*1, 1916*1) and wished to obtain new information about the archaeology of the McElmo District "where similar buildings are found and where . . . cultural relatives of the former inhabitants of Mesa Verde once lived" (Fewkes 1919*1:10). In particular, he wished to examine "towers and other related buildings" that would shed light on his interpretations of "Sun Temple," a D-shaped multiwalled building he had previously excavated at Mesa Verde (Fewkes 1916*1). The report of his reconnaissance was published in 1919 as "Prehistoric Villages, Castles, and Towers of Southwestern Colorado" (Fewkes 1919*1). This publication contributed to the establishment of Yucca House National Monument, south of both Cortez and Hovenweep National Monument; Hovenweep is along the Colorado-Utah border.

One of the sites visited by Fewkes in his surveys was Sand Canyon Pueblo, known at that time as the Johnson Ruin, after the homesteader who lived nearby. Fewkes (1919*1:18) correctly locates it at the head of Sand Canyon and describes it as

. . . one of the largest ruins visited. The remains of former houses skirt the rim of the canyon head for fully half a mile, forming a continuous series of mounds in which can be traced towers, great houses, and other types of buildings, and numerous depressions indicating sunken kivas. The walls of these buildings were, however, so tumbled down that little now remains above ground save piles of stones in which tops of buried walls may still be detected, but not without
some difficulty. In a cave under the "mesa rim" there is a small cliff-house in the walls of which extremities of the original wooden rafters still remain in place.

12

It is not clear what Fewkes meant by the label "great house" (cf. Fewkes 1919*1:40) or what he saw as evidence of such great houses at Sand Canyon Pueblo. The structures he calls "great houses" in the Hovenweep area (Fewkes 1919*1:73–74) are all multistory, multiroom buildings without kivas. Fewkes (1919*1) also recognized that D-shaped structures bearing a general resemblance to Sun Temple were common in the canyon rim pueblos of the McElmo area. He considered these to be one of the several types of towers present at these sites.

13

In 1967, Sand Canyon Pueblo was assigned its current state site number (5MT765) and surveyed by a crew from the University of Colorado engaged in a reconnaissance of the McElmo Planning Unit of the Dolores Grazing District for the Bureau of Land Management (Martin 1971*1). On the survey form, no occupation date or time period is assigned, but the cultural affiliation is listed as "Pueblo." Pottery sherds and stone flakes were collected from the modern ground surface. In the report, which summarizes inventory work conducted from 1965 through 1969, Sand Canyon Pueblo is classified as likely to have been occupied from the Basketmaker III through Pueblo III periods (Martin 1971*1:49). The excavations conducted by Crow Canyon from 1984 through 1993 show that in fact the village was constructed and occupied only during the late Pueblo III period.

14

In 1975, a team from the University of Colorado, under contract with the Bureau of Land Management, conducted an inventory of cliff dwellings in the Sand Canyon area. The several small cliff dwellings located just southeast of Sand Canyon Pueblo (and mentioned by both Prudden and Fewkes) were included in the inventory (Martin 1976*1) and were stabilized in 1978 (Metzger and Breternitz-Goulding 1981*1). This small site has since been assigned a new number, 5MT16844. A second set of ruins, slightly farther southeast, has also been assigned a new site number, 5MT16845.

15

During the early 1980s, the Colorado Office of Archaeology and Historic Preservation sponsored the preparation of a prehistoric context report for southwestern Colorado (Eddy et al. 1984*1). This report summarized the state of archaeological knowledge about several "drainage units," or "DUs," including the McElmo DU. According to Eddy et al. (1984*1:40):

During the late PIII stage [post–A.D. 1150] site densities within the [McElmo] unit are less than one-half when compared to late PII or early PIII. This decline is most apparent in the northwest, northeast, and southeastern portions of the unit; the cliffs and canyons of the lower McElmo canyon and the Hovenweep locality apparently were the last bastion of Anasazi settlement within
the unit with the exception of the Mud Springs complex. Late PIII population levels are greatly reduced in the northern plateau/mesa top environmental zone, and most small settlements appear to have been abandoned by late 1200s. Although no corroboration is available through tree-ring dates, occupation of the large "town" complexes may have continued into the middle 1200s.

16

Table 3.1 in Eddy et al. (1984*1:41–42) lists 14 "town-size" sites or site complexes in the McElmo drainage unit that were known from published reports or from surveys. Seven of these are identified as "Pueblo II–Pueblo III" and only one as "Late Pueblo III." This, then, was the state of knowledge when the Crow Canyon Archaeological Center began research at Sand Canyon Pueblo late in the summer of 1983.

17

E. Charles Adams, tasked in 1983 with developing plans for the newly established research program at Crow Canyon, had access to an early draft of Eddy et al. (1984*1) and was influenced by the research questions discussed in that work. In the first general research designs prepared to guide Crow Canyon's research, Adams (1983*2, 1984*5, 1984*6) proposes that Sand Canyon Pueblo be the central focus of a long-term regional research program designed to investigate the Pueblo III period in the McElmo drainage unit, including chronology and regional interaction, as well as the formation of the large "towns" and the depopulation of the area in the A.D. 1200s (Adams 1983*2, 1984*5; Adams and Bradley 1984*1). These all were issues emphasized in the discussion of the McElmo drainage unit in the archaeological context report authored by Eddy et al. (1984*1).

18

Of the 10 to 15 large Pueblo II–Pueblo III "towns" known at the time in the McElmo drainage unit (Eddy et al. 1984*1), why was Sand Canyon Pueblo chosen as the centerpiece of Crow Canyon's major multiyear excavation effort? In the first research design, Adams (1983*2) notes that Goodman Point Pueblo and Yucca House are administered by the National Park Service and therefore are unlikely to be available for research involving a significant amount of excavation (though he does propose that Goodman Point be mapped as part of the regional study). He discusses the possibility of excavation at the Sand Canyon, Mud Springs, Yellow Jacket, or Cahone sites (as the latter is now known as the Ansel Hall site). He points out that at the latter three, much of the adjacent land had been farmed, and it therefore would be more difficult to identify and study nearby contemporaneous sites. Furthermore, only Sand Canyon Pueblo and Mud Springs appeared to be terminal Pueblo III (Hovenweep phase) sites, and Mud Springs had been extensively damaged by looters working with mechanical equipment (Adams 1983*2). By contrast, Sand Canyon Pueblo was largely intact and was bordered to the south by public lands that had not been plowed. The area subsequently designated for intensive survey was an 8-x-4-km portion of the Sand Canyon drainage (Adams and Bradley 1984*1:9) that had not been subject to agricultural disturbance. Another factor in the selection of Sand Canyon Pueblo was that it is easily accessible by road from the Crow Canyon campus (Adams 1983*2). However,
several of the other sites considered are approximately as accessible and are closer to Crow Canyon in terms of travel time.

19

The selection of Sand Canyon Pueblo as the focus of Crow Canyon's emerging research program took place at a time when public interest in the region's archaeological sites had increased because of the extensive research being done by the Dolores Archaeological Program and the related establishment of the Anasazi Heritage Center as a public museum and archaeological collections repository (Breternitz et al. 1986*1). Also under consideration was a proposal to designate more than 200,000 acres of public land in southwestern Colorado as a National Conservation Area (NCA) (Adams and Bradley 1984*1; Anasazi Advisory Committee 1983*1) to ensure improved protection, management, and interpretation of archaeological resources as public lands visitation continued to increase. Although the NCA was not established, the resultant controversy and discussion increased public awareness of the region's archaeological sites, especially the largest and most visible ones, such as Sand Canyon Pueblo.

20

It was in this context, then, that Adams and Bruce Bradley approached the Bureau of Land Management (evidently early in 1983) with a proposal that Crow Canyon initiate research at Sand Canyon Pueblo. Permission was granted, and fieldwork began on a small scale in the summer of 1983, when Adams and Bradley mapped Sand Canyon Pueblo with a plane table and alidade (Adams 1983*2:40; see Database Map 4316). In October 1983, a brief proposal was presented to the Bureau of Land Management for a multiphase program of testing, excavation, and survey at Sand Canyon Pueblo and in the surrounding area (Adams et al. 1983*1). Necessary permits were obtained (see "Site Overview" in The Sand Canyon Pueblo Database), and excavations began the following year.

21

Development of an ambitious long-term regional research project was consistent with the mission of the Crow Canyon Archaeological Center, as set forth by its president, Stuart Struver. While working in the Midwest, Struver had called for organizing research in ways consistent with the organizational and data requirements of the then-new "new archaeology" (Struver 1968*1:132–133):

What is called for is the development of an archaeological organization complex enough to enable formulation of broad and important problems, while at the same time providing an institutionalized means of assembling the personnel, the capital equipment, and the special bodies of knowledge necessary to plan a research design and to carry out field work and analysis. . . . More importantly, it will help to insure long-term continuity without which such a program could not succeed.

22
Field research at Sand Canyon Pueblo, initiated in 1983, was to play a vital role over the next decade as the staff of the young Crow Canyon Archaeological Center worked to design a long-term interdisciplinary research program and to develop the personnel and institutional capacities necessary to carry it out.

The Sand Canyon Locality Research Design

From the beginning of Crow Canyon's work at Sand Canyon Pueblo, the excavations there were seen as one important component of a larger regional research design that would involve both intensive and extensive surveys, test excavations at some sites, and intensive excavations at others (Adams 1983*2, 1984*5; Adams and Bradley 1984*1; Adams et al. 1983*1). In the summer of 1983, before the map of Sand Canyon Pueblo had been completed, E. Charles Adams wrote a preliminary research design outlining Crow Canyon's long-range plans. He briefly surveyed three other long-term regional research programs—the Black Mesa Archaeological Project (BMAP), Chaco, and the Dolores Archaeological Program (DAP)—and asserted that Crow Canyon would mount a similarly ambitious research effort over the next two decades (Adams 1983*2). The broadest goals were described (Adams 1983*2:13–14) as follows:

In terms of research goals, for all three major projects [i.e., the ones listed above] a focus was on interaction with outside groups. This interaction can be termed exchange, trade, or contact depending on the intensity and duration of the interaction. Second, all three are interested in the social aspects of the archaeological remains, either considering these remains as separate from the economic system, or attempting to integrate the social and economic interactions between groups or villages, as explicitly defined at BMAP, and less so at Chaco and DAP. For the research at Crow Canyon, interaction between groups at multiple levels and integration of cultural units at these levels allowing stability of the culture will be the central themes to Crow Canyon research. As visualized, this research design makes much more explicit the complex interactions between culture and its environment through social and economic mechanisms. These mechanisms are also interactive and define man-environment relations for that culture.

Adams went on to define types of economic and social interaction and integrative mechanisms expected for 12 levels of interaction, as defined by spatial-cultural units. The levels ranged from the supra-area (the Southwest), the area (Four Corners), the region (McElmo drainage unit), and the locale (Sand Canyon) down to household units, individual habitations, and activity areas (Adams 1983*2:17–19). These ideas were refined in mid-1984 in a proposal to the National Science Foundation (Adams and Bradley 1984*1).

Adams's (1983*2) initial research design for Crow Canyon envisioned fieldwork on two more-or-less equally balanced fronts, in terms of effort. Excavations would be completed at the Duckfoot site, located near the Crow Canyon campus, and research in that locale would expand
to include intensive survey and the testing or excavation of two sites representing the early and the late Pueblo II period, respectively (Adams 1983*2:33–34). It quickly became apparent that the demands of conducting survey, testing, and intensive excavation in two separate localities would strain Crow Canyon’s capabilities. By mid-1984, research plans were focused primarily on developing multistage fieldwork in the Sand Canyon locality (Adams and Bradley 1984*1). Excavations continued at Duckfoot until completed in 1987 (Lightfoot and Etzkorn 1993*1), but no other sites were tested, and survey in that locality ceased after the 1985 field season (Van West 1986*1).

In late 1985, after two full field seasons of excavation at Sand Canyon Pueblo, Bradley and Lipe (1985*1:6) summarized the goals of research in the Sand Canyon locality:

The Sand Canyon Project is designed to investigate 1) Community organization. What was the size and economic base of the community, how was it organized, and what role did Sand Canyon Pueblo play vis-a-vis the other settlements? 2) Regional organization. Were there well-structured relationships among northern San Juan Anasazi communities in the 13th century? If so, what role did Sand Canyon play in the system? 3) Cultural dynamics. What processes were responsible for the development and eventual abandonment of the Sand Canyon complex, and what light do findings there throw on widespread patterns of aggregation and abandonment in the northern San Juan at this time? 4) Culture history. The 13th century cliff dwellings of the Mesa Verde and the tower complexes of Hovenweep have received much attention . . . but the contemporaneous large pueblos of the McElmo drainage are little known, with virtually no scientific excavation since the early 20th century. . . .

Late in 1986, Lipe and Bradley submitted a grant proposal to the National Science Foundation that represented a further development of the research design for the Sand Canyon locality. The overarching theoretical framework was provided by the notion that community and regional organization could be described on the dimensions of scale, differentiation, integration, and intensification, and that variability among these dimensions should not be expected always to correlate (Lipe 1992*1, 1992*3; Lipe and Bradley 1986*1). This approach rejected the search for critical thresholds between tribe, chiefdom, and state types of organization in favor of attempting to characterize past communities in terms of each of these four dimensions. Varien and Wilshusen (2002*1) note that this approach foreshadowed types of dimensional analysis currently used in application of the concept of heterarchy to studies of past social organization.

**Sampling Designs and Objectives at Sand Canyon Pueblo**

From the outset, it was projected that excavations at Sand Canyon Pueblo would occur in several phases, of which the first was to last for several years and focus on sampling the architectural
variability across the site, as expressed in room-to-kiva ratios (Adams 1983*2, 1984*2; Adams et al. 1983*1). Bradley (1992*2:80–81) summarizes the approach:

Adams and Bradley (Adams 1984*2) concluded that the research questions they wished to answer could best be examined by fully excavating groups of structures selected to sample the architectural variability that was visible from surface evidence. The kiva suite and the architectural block were defined as the primary elements for sampling. As a first step, the site was subdivided into 14 architectural blocks . . . each of which consists of a cluster of contiguous architecture, regardless of what types of structures it contains. Architectural block boundaries were defined by horizontal or vertical (e.g., cliff-edge) breaks in structural continuity. The 14 architectural blocks were numbered as 100, 200, etc., through 1400.

. . . the architectural blocks were assigned to one of three groups on the basis of the most obvious pattern of architectural variability at the site—differences in the ratios of rooms to kivas. Kiva-dominated blocks have surface evidence of fewer than four rooms per kiva, as averaged over the block, standard blocks have 5–16 rooms per kiva, and the single block where rooms appear strongly predominant has surface evidence of more than 20 rooms per kiva.

This phase of the research was conducted over six field seasons, from 1984 through 1989 (Bradley 1992*2, 1993*2:1). Intensive excavations focused on selected "kiva suites"—that is, kivas and all the structures and outside spaces directly associated with them. Six groups of structures (some of which included more than one kiva), located in Architectural Blocks 100, 200, 300, 500, 1000, and 1200, were fully excavated (Bradley 1992*2).

The second phase of the research was an examination of public architecture—that is, the D-shaped building (Architectural Block 1500) and the great kiva (located in Architectural Block 800). These were partial excavations consisting of strategically located pits and trenches. Three seasons, 1991 through 1993, were required to complete this phase of the research (Bradley 1991*2, 1992*4, 1993*2; Bradley and Churchill 1994*2).

Concurrent with both phases were two probabilistic sampling programs designed to ensure adequate coverage of the site as a whole so that the use, function, and pattern of abandonment of the village could be characterized (Bradley 1993*2:1). The first of these programs was a stratified sample of 30 test pits, excavated from 1987 through 1989. Bradley (1988*2:22–23) describes the approach:

Structural areas of the site have been excluded from this sample because of the complications that arise from excavating small test holes into deep masonry rooms and because a substantial test within structures is already being undertaken. The remaining areas of the site are defined by arbitrary boundaries selected because of architectural proximity and surface artifact densities.
These boundaries have been drawn so that they include all areas within 4 to 12 meters of the structures at Sand Canyon Pueblo. Rather than treating this area as a single unit it was decided to subdivide it by physiographic location and architectural proximity. . . . Three units have been defined: (1) the area outside of the architecture and above the cliff (Sample Stratum 1); (2) the open areas contained within the structural area of the site (e.g., the central plaza, Sample Stratum 2); and (3) the area outside of the architecture and below the cliff (Sample Stratum 3). Each of these areas are considered independent units for testing. Based upon the theory of probability sampling, ten 2 x 2 m grid squares were randomly selected for excavation in each of these sample strata. . . . If excavation reveals the presence of a structure, the grid square is abandoned as a probability unit and replaced by an adjacent square, opposite the location of the architectural unit.

The other general site-wide sampling program was designed to gather more data about kivas. It was outlined in the plan of operations for 1993 (Bradley 1993*2) and was begun during the 1993 field season. The plan was to test 16 kivas to obtain more data regarding possible differences in kiva abandonment modes (e.g., presence or absence of burning and/or large de facto refuse assemblages) between the eastern and western sides of the site and/or between "kiva-dominated" and "standard" architectural blocks. It was also expected that this sample of kiva tests would provide additional tree-ring dates useful for refining site chronology. The tests consisted of the excavation of 1-x-2-m pits located so as to sample the kiva hearth and to expose the lower lining wall and ventilator tunnel opening (Bradley 1993*2).

**Chronology of Field Research at Sand Canyon Pueblo**

As in all Crow Canyon excavations, participants in public education programs, under the supervision of Crow Canyon staff, did most of the excavation (Database Photo 3713, Database Photo 7810, Database Photo 7849, Database Photo 9749, Database Photo 9750, Database Photo 7852, Database Photo 7853). Included each year were many adults as well as students in middle school through high school. These people are too numerous to list here, but without their dedicated efforts, the excavations could not have been done.

An in-house report was completed by the primary site supervisors for each of the nine seasons of excavation at Sand Canyon Pueblo. These reports are listed in Table 1.

Although the excavations at Sand Canyon Pueblo were an important focus of Crow Canyon's research, excavations were also conducted at other sites concurrently. The fieldwork at Sand Canyon Pueblo overlapped with excavations at the Duckfoot site (Lightfoot and Eitzkorn 1993*1), the Green Lizard site (Huber 1989*1, 1993*1; Huber and Lipe 1992*1), Castle Rock
Pueblo (Kuckelman 2000*1), and the numerous sites investigated as part of Site Testing Program (Varien 1999*2). In addition, archaeological surveys were conducted by Crow Canyon archaeologists, often with the assistance of public program participants, in the Sand Canyon locality during the field seasons of 1985 through 1987 (Adler 1988*1, 1990*5, 1992*3; Van West 1986*1; Van West et al. 1987*1).

1983 Field Season

In 1983, the Crow Canyon Archaeological Center offered its first public programs, and excavations were initiated at the Duckfoot site, with E. Charles Adams and Bruce Bradley directing the work. A small amount of site survey was also completed in the area surrounding Duckfoot. As time permitted, Adams and Bradley compiled a detailed map of Sand Canyon Pueblo, using a plane table, alidade, and tape (Database Map 4316). Because there appeared to be an unusually large number of kivas in relation to surface rooms and few exposures of midden deposits, Adams and Bradley interpreted the site as a ceremonial center for a population living in the surrounding area. In a grant proposal written in the winter of 1983–1984, Adams (1984*5) stated

The presence of numerous nonresidential architectural units, including nearly 100 kivas, fifteen towers and a D-shaped tri-wall structure, indicate the pueblo was a ceremonial center, probably for a large population around the site.

1984 Field Season

In 1984, as was typical of most field seasons during the long campaign at Sand Canyon Pueblo, Crow Canyon conducted excavations at another site as well. Work at the Duckfoot site was directed by Bruce Bradley, while E. Charles Adams directed the excavations at Sand Canyon Pueblo. At various times during the 1984 field season, other Crow Canyon staff members—including Bruce Bradley, Carla Van West, Steve Shelley, and Ricky Lightfoot—participated in excavation and/or survey at Sand Canyon Pueblo (Adams 1985*1). By the beginning of the field season, the site had been subdivided into architectural blocks on the basis of the site map, and it had been decided that sampling would be effected by completely excavating all structures and sampling the middens and extramural surfaces in a selected kiva suite in each of several architectural blocks (Adams 1984*2; Bradley 1992*2).

The goals of excavations during this season were "to begin sampling the diversity of the structures at Sand Canyon Pueblo" (Adams 1985*3:2, 1986*1:2), to gather data that would verify that the site was occupied near the time of regional depopulation in the late A.D. 1200s (Adams 1985*3:2), and to determine if the pueblo served as a ceremonial center (Adams 1985*4:2). The dating information would be critical for addressing one of the primary research
questions: "Why was the area abandoned in the late 1200s?" (Adams 1985*3:2, 1986*1). The excavations, which were conducted in Blocks 100, 300, and 1200, revealed (1) that some structures contained abundant de facto refuse (usable items left behind; see Schiffer [1972*1:160, 1987*1:89]), (2) evidence of the intentional burning of kivas in widely separated areas of the site, and (3) the remains of several individuals whose deaths might have been associated with the abandonment of specific areas of the village, of the region, or both. Because kivas and towers, inferred to be ritual structures, appeared to be even more abundant than originally thought, and because no structure examined up until that time fit the model of a habitation room, the interpretation that the site had been a ceremonial center seemed to be substantiated (Adams 1985*1:9, 1985*4:2, 1986*1).

1985 Field Season

In 1985, Bruce Bradley assumed direction of the excavations at Sand Canyon Pueblo (Database Photo 3124), and Ricky Lightfoot replaced him as director of the Duckfoot project. Over the winter of 1984–1985, E. Charles Adams had left the Crow Canyon Archaeological Center to take a position with the Arizona State Museum directing a long-term program of research at the Homol'ovi complex in Arizona, and Bill Lipe had taken on the role of Crow Canyon's director of research part-time. Assistance during the 1985 field season was provided by Crow Canyon staff members Ricky Lightfoot, Carla Van West, Val Whitley, and Carrie Lipe (Bradley 1986*1), and volunteer Cindy Paul. Amaterra, a volunteer organization based in Tucson and directed by Roger Irwin, provided a variety of support services.

The goals of this season were to continue gathering data regarding the status of the pueblo as a ceremonial center and the possibility that resource depletion was the cause of the thirteenth-century depopulation of the region (Adams 1985*4:4). During 1985, the excavation of groups of contiguous rooms and extramural spaces that, it was hoped, would prove to be "kiva suites" continued in Architectural Blocks 100, 300, and 1200, and was initiated in Block 200. Bradley (1986*1) estimated that Architectural Block 100 contained 12 kivas, 20 rooms, and one tower, and that Block 200 contained six kivas, 21 rooms, and one tower. Although the perceived high ratio of kivas to rooms in Block 200 led Bradley to categorize the block as "kiva-dominated," the group of structures selected for excavation actually contained a more "standard" ratio of one kiva to six rooms. Block 300, classified as "room-dominated," consisted of an estimated two kivas, 35 rooms, and no towers (Bradley 1986*1; see also Database Map 4003), although, as originally delineated, this block contained at least four kivas—three visible at modern ground surface (Adams 1985*4: Figure 1; Adams et al. 1983*1:Figure 1) and one identified as a kiva only as a result of excavation. Bradley (1986*1) estimated that Block 1200 contained two kivas, 13 rooms, and two towers, and thus falls within the "standard" range of kiva-to-room ratios.
Interpretations of the pueblo advanced significantly during 1985. First, the tree-ring dates that became available suggested that construction and occupation of the village began about A.D. 1232 and ended sometime after 1274; the pottery types being found were consistent with an occupation in the late Pueblo III period. Second, analysis of the human remains found in Block 100 indicated that some individuals had suffered trauma around the time of death and thus might have died as a result of violence (Bradley 1986*1:35). Most burials, formerly inferred to be intentional and formal, were reinterpreted as "unstructured disposal of the dead" (Bradley 1986*1:36). Third, the artifact assemblages being found in kivas resulted in doubt being cast on the hypothesis that the pueblo was a ceremonial center, a theory that had derived primarily from the assumption that kivas were used principally for ritual. Last, speculation arose that there were differential room-to-kiva ratios in the portion of the pueblo west of the drainage as opposed to the portion east of the drainage, and that this difference might reflect ritual vs. domestic use, respectively.

1986 Field Season

Bruce Bradley directed excavations at Sand Canyon Pueblo during the 1986 field season, with Jim Kleidon as his full-time assistant. Other staff members who assisted part-time included Geoff Thompson, Lew Matis, Luther Allen, and Megg Heath (Bradley 1987*1). George and Betty Havers volunteered. Under the direction of Roger Irwin, the organization Amaterra provided volunteer logistical support.

A small amount of recording and excavation occurred in Blocks 100 and 300, but the majority of the fieldwork in 1986 was conducted in Blocks 200 and 1200 (Database Map 4001). The data gathered that year helped to clarify chronology, construction sequences, and site-formation processes (Bradley 1987*1:95). The kiva suites that had been sampled thus far did not appear to have been constructed in one preplanned episode but, rather, appeared to have grown by accretion. The issue of whether the pueblo served as a ceremonial center had not been resolved (Bradley 1987*1:95), but Bradley (1987*1:96) did suggest that the pueblo had been used intermittently rather than year-round.

1987 Field Season

The 1987 excavations at Sand Canyon Pueblo were directed by Bruce Bradley, with Jim Kleidon as his full-time assistant. Part-time assistance was provided by staff members Geoff Thompson, Alan Denoyer, Lew Matis, Roger Walkenhorst, and Megg Heath (Bradley 1988*2), as well as by volunteers George and Betty Havers.
During this field season, the excavation of a kiva suite in Architectural Block 500 began, and investigations in Blocks 100, 200, and 1200 were completed. Block 500 contains an estimated nine kivas and 19 surface rooms; the room-to-kiva ratio of approximately 2:1 led to its being classified as "kiva-dominated" (Bradley 1988*2:11). However, the suite of structures that was chosen for excavation was selected because it appeared from surface evidence to be a "Prudden unit"—that is, a group of structures "generally considered to be the domestic quarters for a household" (Bradley 1988*2:11; Kleidon and Bradley 1989*1:1, 3). Also initiated in 1987 was excavation of a probabilistically chosen sample of 30 test pits, each measuring 2 x 2 m, that were placed in nonarchitectural areas of the site (Database Map 4001 and Database Map 4002). This sample was designed to contribute data toward estimates of the total accumulation of artifacts at the site (Bradley 1988*2:22). Such projections of the amount of refuse would help researchers address the issue of whether the pueblo was residential or was used primarily for ritual purposes.

Knowledge of the pueblo increased in several ways as a result of investigations in 1987. During final work in Kiva 108, removal of the adobe flooring revealed a bedrock petroglyph (probably representing kokopelli) (Bradley 1988*2), which appeared to substantiate the hypothesis that the site was of heightened ritual significance. The artifacts and architecture found during excavation of Kiva Suite 501 conformed to what was considered "standard" Pueblo III household habitation (Bradley 1988*2:14), although why this type of unit was located within an architectural block that appeared to contain a high proportion of kivas was still unclear. Final excavations in Block 1200, which included the discovery of a previously unknown line of rooms west of Kiva 1206 (Database Map 4159), led to substantial changes in the interpretation of the building sequence in the kiva suite (Bradley 1988*2:19).

1988 Field Season

In 1988, Bruce Bradley continued as overall supervisor of research at the site. Continued excavations in Architectural Block 500 were overseen by Jim Kleidon, with the assistance of various seasonal staff members. Work was initiated in Block 1000 by Bruce Bradley, assisted by volunteer Cindy Paul. Interns Maripat Metcalf and Sarah Oliver assisted at the site during part of the summer, as did Crow Canyon staff member Ruth Slickman (Kleidon and Bradley 1989*1). Excavation of probability units continued.

Investigations in Kiva Suite 501 led to a refinement of the interpretation of the building sequence within the suite. In addition, abundant de facto refuse suggested that abandonment of the suite coincided with the depopulation of the village. For Block 1000, although the estimated quantity of rooms and kivas was not specified, the room-to-kiva ratio was estimated variously as 10:1 (Kleidon and Bradley 1989*1:47) and 7:1 (Bradley 1992*2). Both estimates placed the block within the "standard" range of room-to-kiva ratios (see paragraph 28). The specific group of structures selected for excavation in Block 1000 was chosen in order to sample a "standard"
architectural block in the eastern part of the site. In addition, the apparently large size of the kiva within the suite was a factor in the selection:

Based on surface indications, this kiva was estimated to be between 8 and 9 meters in diameter. The largest previously excavated kiva at Sand Canyon Pueblo was a bit over 5.5 meters in diameter. Since about ten oversized kivas have been estimated at Sand Canyon Pueblo, it was felt that at least one of them should be investigated during the initial sampling phase at the site (Kleidon and Bradley 1989*1:47).

Excavations in Kiva 1004, however, revealed a normal-size kiva approximately 5 m in diameter—the surface indications had reflected the size of the large courtyard surrounding the kiva rather than that of the kiva itself (Database Map 4121), which also casts doubt on the true diameters of the other kivas that were classed as oversized on the basis of surface indications.

1989 Field Season

In 1989, Bradley continued as director of site excavations and was assisted by Jim Kleidon. Other Crow Canyon staff and interns who assisted included Cindy Paul, Julie Endicott, and Allison Hoff (Bradley 1990*2); George Havers volunteered.

The probabilistic sample of 30 2-x-2-m units was completed during this season, although the excavations in Architectural Block 1000 (Database Photo 9220) were the main focus of the 1989 excavations. A great deal of data was gathered regarding the construction sequence of Kiva Suite 1004 and the use histories of the structures within the suite.

1990 Field Season

In 1989, the "first segment of an archaeological sampling program at the site" (Bradley 1990*2:1) was completed. As stated in the initial plan of operations (Adams 1984*2), the first phase of excavations would consist of the complete excavation of several kiva suites, chosen to represent the architectural variability that appeared to be present at the site with respect to room-to-kiva ratios (i.e., kiva-dominated, standard, and room-dominated) among architectural blocks. In addition, kiva suites were chosen so as to sample both the eastern and western portions of the site. To that basic sampling design was added the probabilistic sample of 30 test pits located in nonstructural areas of the site, as described in paragraph 31 (see also Bradley 1988*2:22–23).
No excavations were conducted at Sand Canyon Pueblo during the 1990 field season. Bruce Bradley was engaged in writing (Bradley 1993*1), analysis, and other research.

1991 Field Season

54

The fieldwork in 1991 was directed by Bruce Bradley and Jim Kleidon, with assistance from research interns Nancy Turner and Evgenij Giria. George Havers volunteered. Amaterra contributed logistical support at the site, including running and maintaining a field camp and building trails (Bradley 1991*2:1).

55

What had been planned as a five-year program of sampling kiva suites (Adams 1984*2) at Sand Canyon Pueblo had been completed in 1989 at the conclusion of six field seasons. In 1991, research at the site shifted to a new focus—investigating the "public architecture" in order to gain a better understanding of community social organization. The excavation strategy also changed from complete to partial excavation of structures.

56

In a 1990 research proposal to the National Geographic Society, Bradley and Lipe (1990*1:1) had described goals for the investigation of public architecture at the site; this research would focus on the D-shaped building that had been recognized during initial mapping of the site in 1983, as well as on an area of the site that had recently been recognized as the location of a possible great kiva:

"Public architecture" refers to non-residential structures that play a role in the social and ceremonial integration of communities or societies. The proposed work focuses on two such structures—a D-shaped building and a possible great kiva—at Sand Canyon Pueblo, a large (450 structures +) walled settlement of the Anasazi (ancestral Pueblo Indian) culture that dates to the late 13th Century A.D. The end of occupation at this site appears to coincide with abandonment of the San Juan region by the Anasazi. Partial excavation of the two structures over two field seasons will provide data on their architectural characteristics, chronology, and associated artifacts and ecofactual materials. The research will contribute to a better understanding of intra—and (perhaps) inter-community organization in the northern San Juan area, and whether modes of community integration were changing in the several decades prior to abandonment of the Pueblo and the region.

57

In 1991, the D-shaped building, previously considered part of Block 600, was redesignated Block 1500. During this season, the tops of numerous walls were exposed (Database Map 4196), a few of the rooms that formed the "D" were tested, the two depressions in the interior of the "D" were sampled, and three trenches were excavated outside the exterior wall of the block (Bradley
As a result of these efforts, the layout of the block was further refined and the presence of two kivas in the interior of the "D" was confirmed.

The great kiva is located in Architectural Block 800, which appeared to also contain several smaller kivas and surface rooms (Database Map 4003). Bradley (1991*2:13) noted:

Until excavations were initiated in May of 1991, the presence of a Great Kiva was only suspected. Initially, the area was mapped as a courtyard surrounded by rooms. It wasn't until the summer of 1989 when Mark Varien noted what looked like the tops of two pillars, that it was suspected to be a Great Kiva.

Within only a couple of days of initial wall clearing [in 1991] it became apparent that we indeed were dealing with a Great Kiva that was, at least partially, surrounded by rooms.

To investigate both the interior and exterior of the great kiva, as well as the relationship between the rooms around the great kiva and a standard-size kiva adjacent to the west, two discontinuous trenches were excavated. One of these was oriented north-south, and the other was oriented east-west (Database Map 4012, Database Map 4281). Investigations in and around the great kiva in 1991 (Bradley 1991*2:13–21) revealed that this structure contained four masonry pillars and was partly encircled by a row of contiguous rooms. A great deal was learned about the sequence of construction and the abandonment of the great kiva and these peripheral rooms, as well as about the standard-size kiva, which proved to be abutted to the peripheral rooms west of the great kiva. Unfortunately, little evidence of the uses of these structures was found on the structure floors.

1992 Field Season

In 1992, fieldwork was directed by Bruce Bradley and Melissa Churchill. They were assisted that year by research interns Kate McGilvray and Scott Van Keuren, as well as trainee Barbara Rosas. George Havers and Hal Calvert volunteered. Amaterra continued to lend logistical support at the site. Also during this year, Crow Canyon published a progress report on the Sand Canyon Project (Lipe 1992*1)—in his chapter on Sand Canyon Pueblo, Bradley estimates that there are 420 masonry rooms in the pueblo and delineates the method he used to arrive at this total (Bradley 1992*2:81).

The goals of excavation in the D-shaped block during this season included learning more about the constructional history of the block, the means of access between structures within the block, and the uses of different structures. During 1992, the tops of walls in the "D" were cleared sufficiently for all of the enclosing rooms to be identified and mapped. Excavations focused on
the east half of the west kiva and the west half of the east kiva. Also, to find and examine doorways, test pits were located adjacent to each cross wall in the "D" of contiguous rooms (Bradley and Churchill 1994*1). This work led to the inference that the structure was, for the most part, planned and built as a unit, although it appeared that one or both of the kivas might have been added later. Also, sometime during the history of the block, the use of these structures appeared to have changed significantly, probably including a loss of their community integrative use.

62

Work in the great kiva (Bradley and Churchill 1994*1) included wall clearing to expose the tops of the walls of the great kiva and the peripheral rooms. Test pits were initiated in several peripheral rooms (Database Map 4281), and the small kiva (Kiva 808) located just west of the great kiva complex was partly excavated. Also, a structure (Room 814) adjacent to the north wall of this small kiva was tested.

63

The data generated during this field season led to a better understanding of the access and use histories of structures in the D-shaped block. This block seemed to have been planned, constructed, and used as public architecture, but it appeared to have been modified into a "more standard" architectural unit containing two kiva suites (Bradley and Churchill 1994*1:47). Evidence of the construction sequence in Block 800 indicated that the peripheral rooms had been built piecemeal after the great kiva was completed. The size and layout of the complex suggested that construction had been a communal effort.

1993 Field Season

64

This was the final season of excavation at the site. The work at Sand Canyon was directed by Bruce Bradley with assistance from Melissa Churchill (Bradley and Churchill 1995*1) and interns Colm Donnelly and Mark Redding. Amaterra continued its role of previous years at the site. Also during this year, Bill Lipe resigned his part-time position as Crow Canyon's director of research, and Richard Wilshusen was hired as full-time research director.

65

The goals this year were to sample 16 previously unexcavated kivas located in untested areas of the site, to investigate an alignment of building stones outside the site-enclosing wall north of Block 100, and to complete investigations in the D-shaped building and the great kiva complex (Bradley 1993*2). Although, because of time constraints, only 11 of the 16 kivas slated for sampling were actually tested (Bradley and Churchill 1995*1:112; see also Database Map 4001), the data generated added greatly to interpretations of the dating and the manner of depopulation of the village. Investigations of the alignment of building stones north of Block 100 revealed a masonry-lined kiva surrounded by an enclosing wall but no additional structures; these
constructions were designated Block 1600 (Database Map 4001). Although dating was inconclusive, this block might predate Sand Canyon Pueblo.

Excavations in the great kiva complex and the D-shaped block were completed, including the west half of the east kiva, the east half of the west kiva, and two rooms (Rooms 1509 and 1519) that had not been tested previously. These investigations enhanced understanding of the construction, use, remodeling, and last use of this block. Final excavations in the great kiva complex clarified the use history and abandonment mode of an additional peripheral room and of the kiva and surface room abutted to the western peripheral rooms.

A small amount of additional mapping was planned for 1994. This effort would result in the addition, to the existing site map, of structures and features that had been recognized after the site map had been created in 1984. Also, a minor amount of final backfilling was completed in the spring of 1994.

Postexcavation Work

The completion of excavations at Sand Canyon Pueblo in the fall of 1993 marked the beginning of more than a decade of postexcavation datachecking, analysis, and numerous related tasks that would bring the collected materials and documentation into final curation and archival form and result in the preparation and publication of this online site report and associated printed publications. Many staff members contributed to these efforts, which are summarized in the following paragraphs.

1993–1995

The report of the 1993 excavation season at the site was prepared largely in 1994 and was completed in 1995 (Bradley and Churchill 1995*1). Also during this time, Bradley and Churchill reviewed and organized the field documentation for the site and conducted background research in anticipation of preparing the final report for all excavations at the site. In addition, Cynthia Bradley checked artifact-type identifications as depicted on original field maps against artifact types assigned during laboratory analysis.

Richard Wilshusen resigned as director of research in 1995, and Ian (Sandy) Thompson was hired as his replacement. Progress on the Sand Canyon project continued—Claudia Clemens, working with Bruce Bradley, began datachecking and compiling selected field maps for drafting
in AutoCAD, and Neal Morris began drafting the selected maps. In addition, Crow Canyon confronted important issues regarding the efficiency and cost-effectiveness of producing printed research publications. Traditional publishing on paper had become prohibitively expensive; the use of increasingly rigorous field and lab techniques was resulting in the generation of huge data sets that could be efficiently managed and published only in electronic form. In an effort to deal with this situation, staff members in Crow Canyon's research and publications departments, with some input from the education staff, explored the possibility of disseminating the results of the institution's research on the Internet.

1996–2004

In 1996, Crow Canyon formally adopted a plan to publish site reports and databases on its Web site (www.crowcanyon.org). An interdepartmental team was designated to develop formats for online site reports, to design and construct the various new databases that would be needed, and to formulate companion educational pieces. The resulting formats were designed for projects—such as Castle Rock Pueblo and Woods Canyon Pueblo—that had been conducted more recently than Sand Canyon Pueblo, but the plan was to adapt the formats as necessary to accommodate the Sand Canyon Pueblo material.

The digitizing of selected field maps—a process begun in 1995—was the first step in converting the Sand Canyon Pueblo records to the electronic medium, and this effort continued in 1996. As part of the institutional effort to develop and test the new system, Bruce Bradley also entered feature descriptions and background information for Sand Canyon into an early version of the database. Other pertinent events that occurred during 1996 included the publication of an article on Sand Canyon Pueblo in the journal *Kiva* (Bradley 1996*1) and the resignation of Claudia Clemens from her position at Crow Canyon.

During map compilation and attempts to enter data into the newly created electronic databases in 1996, it became clear that a thorough review of the data from Sand Canyon Pueblo was imperative. The goals of this review were (1) to identify—and to the extent possible, correct—the errors, omissions, and inconsistencies that are inevitable in a project of such long duration; (2) to assess which of the Sand Canyon categories of field data could realistically be included in a database designed years after the data were recorded; and (3) to organize selected original records and convert the information to formats that would allow us to enter relevant data into the database.

From 1996 through 2002, a team composed of several members of the publications staff (Mary Etzkorn, Sandy Tradlener, and Ginnie Dunlop) and research staff (Kristin Kuckelman, Melissa
Churchill, Melita Romasco, and Carole Graham), as well as an outside consultant (Neal Morris), undertook a massive datacheck and data compilation effort that involved (1) checking provenience information to field notes, field maps, and field photographs; (2) evaluating the provenience and FAP (fill/assemblage position) and FAT (fill/assemblage type) coding assignments for the entire site and updating these codes as needed for intrasite and intersite consistency; (3) completing the entry of field data and interpretations into the database (including digitizing field and laboratory photographs and entering related descriptive information into the database); and (4) completing the drafting and proofreading of maps. The final version of the site map was produced during this time (Database Map 4001).

Also during this span of years, other events affected work on the Sand Canyon material. In 1997, Sandy Thompson resigned as director of research and was replaced by Mark Varien, and Bruce Bradley left Crow Canyon and began an independent consulting business. Melissa Churchill resigned her position in 2001.

In 2002, Kristin Kuckelman assumed the role of volume editor for the Sand Canyon Pueblo site report and wrote a descriptive and interpretive summary of excavations organized by architectural block. This document was published online in 2003 and has now been incorporated into this publication as Chapter 4. Also published in 2003 was a journal article on Crow Canyon's conversion from printed site reports to online publications (Kuckelman 2003*3). The Sand Canyon Pueblo Database which contains field and laboratory-analysis data in a user-friendly format, was published online in 2004; staff members who were instrumental in this effort were Scott Ortman, Louise Schmidlap, Lee Gripp, Kristin Kuckelman, and Mary Etzkorn. The database is structured similarly to the online databases for other sites excavated by Crow Canyon; however, adjustments to the basic format were necessary to accommodate the Sand Canyon material. Together, this report and the accompanying database present the most current information about this important site, which has contributed significantly to our understanding of the late-thirteenth-century occupation of the central Mesa Verde region.

Footnote

1The Crow Canyon Archaeological Center was established as a not-for-profit research and education organization in early 1983, initially as a Southwestern branch campus of the Center for American Archaeology (CAA) in Illinois, which was affiliated with Northwestern University and directed by Stuart Struever. The new center occupied a campus near Cortez that had been purchased from the Crow Canyon School, which, since the early 1970s, had been directed by Edward and Joanne Berger (Berger 1993*1). The school's formal title was I-SEP (Interdisciplinary Supplemental Education Programs). Although the Crow Canyon School did not conduct archaeological research, students in programs there sometimes assisted professional archaeologists (e.g., Arthur Rohn) in excavations or participated in educational programs having
an archaeological focus. After the sale of the school's campus to the CAA in 1982, Edward Berger continued as executive director of Crow Canyon until 1985, during the Center's transition from a CAA satellite to a fully independent, Colorado-based not-for-profit organization chartered in 1985. E. Charles Adams was hired in 1983 as senior research archaeologist and director of research, and Bruce Bradley was hired shortly thereafter as associate research archaeologist. The new organization's first field project, started in the summer of 1983, was excavation of the Duckfoot site, a Pueblo I hamlet near the Crow Canyon campus (Lightfoot 1994*1; Lightfoot and Etzkorn 1993*1).