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SAN JUAN COUNTY, UTAH

CONTRACT #52500-CT4-558

Final Report

for

Surface Cleanup of Cultural Sites in Grand Gulch

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ABSTRACT: In June of 1974 nine badly disturbed archaeological sites in the Grand Gulch canyon system were mapped and surface materials collected by personnel from the Museum of Northern Arizona. Of primary concern was cultural material on the surface of these sites which constituted an invitation to further illegal digging and destruction of the non-renewable resource represented at these sites. Disturbed areas at the sites were mapped and marked with metal markers. Collected materials were analyzed, and the results are tabulated in this report. A history of archaeological work in Grand Gulch is developed, and estimates of the research potential remaining at these sites are given. Recommendations for restorative measures are outlined. Black-on-white photo documentation of the sites is included.

INTRODUCTION

Under contract between the Bureau of Land Management of the U.S. Department of Interior and the Museum of Northern Arizona, collection, recording, and mapping of surface materials and features at nine archaeological sites in the Grand Gulch canyon system, San Juan County, Utah, was conducted by Museum personnel between June 3 and June 17, 1974. The contract, No. 52500-CTH-558, was proposed December 3, 1973 through the efforts of Richard Fike, Archaeologist for the State of Utah, Bureau of Land Management, and Dr. W.D. Lipe, Assistant Director of the Museum of Northern Arizona. It became effective May 30, 1974, and was entitled "Surface Cleanup of Cultural Sites in Grand Gulch". Work was carried out under U.S.D.I. Antiquities Act permit No. 72-AZ-040 and State of Utah Antiquities Section permit No. 118 (survey). All nine sites were dry cave locations within the deep Grand Gulch

canyon system, and were, primarily, either burial areas or habitation areas dating from the Anasazi Basketmaker and Pueblo periods.

Grand Gulch has enjoyed a long reputation as an area rich in archaeological sites and artifacts. The work of this project was motivated by the problems of looting of artifactual material and grave robbing that have occurred at the sites in Grand Gulch throughout the time since their discovery late in the 19th century. The cumulative effect of these activities has been the thorough but unsystematic reworking of much of the fill in the cave floor areas at these sites, the creation of numerous pits and backdirt piles in these disturbed areas of cave floor fill, and the scattering about on the surface of the sites of large quantities of cultural material, both perishable and non-perishable. This material includes, among other things, human bone, cordage and basketry fragments, and ceramic and lithic debris. These effects can be seen in a number of the photographs accompanying this report (Appendix C, plates 2, 4, 5, 7, 8, 12, 19, 27, 32). The depletion of the cultural resource represented by the sites in Grand Gulch has continued at varying but probably continuous rates since the first removal of large amounts of material in 1891 by Charles McLoyd and C.C. Graham of Durango, Colorado. Observations by Bureau of Land Management personnel and

others familiar with the area over a period of time indicate that the depletion process is still continuing at a significant rate through illegal digging, accidental or intentional damage to structural features, and the casual pocketing of surface artifacts. Since its establishment as a Primitive Area in 1970, Grand Gulch appears to have experienced a growth in visitor traffic. While this traffic is not necessarily related to the more serious forms of "pothunting" and looting, it does indicate a need for increased attention to be given to the conditions of archaeological sites in the area and to their overall protection.

This project, then, is part of an overall, active conservation program aimed at protecting this non-renewable cultural resource and restoring, where possible and appropriate, the original appearance of the sites. The general contributions of the present project to this conservation program are as follows.

First, the nine sites covered by this project are among the most obviously disturbed of the larger, better known sites in the Grand Gulch canyon system. By picking up the surface material at the sites, much of which was originally buried, the attraction for further illegal digging at these sites and for the area in general has been lessened. The most critical material in this regard is human bone and artifacts commonly associated with burials,

such as cordage, basketry, juniper bark, and, apparently, corn cobs. By documenting existing looters' pits and disturbed areas it will be possible to identify, with greater clarity, new disturbances.

Second, the information contained in the surface distribution of artifacts and debris at these sites has been conserved through carefully controlled mapping and collection. At several of these sites this surface distribution was being significantly affected by the slow disappearance of items such as sherds and lithic pieces and by the gathering of sherds into piles by visitors, probably for photographic purposes.

Third, the maps that have been produced by this project can serve as basic references and maps for the planning and execution of any restorative or stabilization measures which may be carried out.

Finally, it is hoped that this report will be a contribution to the body of materials useful to the BLM in developing the interpretive program for the Grand Gulch area.

In the light of the preceding overall considerations, the explicit objectives of this project were the following: collection of all perishable materials from the surfaces of the sites, especially burial-related items; collection of as much non-perishable material, such as sherds and lithic pieces, as time and logistics permitted; careful

mapping of each site, with special attention to looters' pits and disturbed areas, and to artifact locations, structures and features; correlation where possible of observed floor fill disturbances and pits with documentation from earlier work done in Grand Gulch; development of recommendations for restorative and stabilization measures for these sites; proper and permanent curation of all collected materials and data; and preliminary analysis of collected materials for inclusion in this report.

Field work for this project was conducted on a back-packing basis, with access to Grand Gulch being gained via Kane Wash, Sheiks Canyon, the Bullet Canyon overlook above the Perfect Kiva site, and "Cable" Canyon, four miles by road south of Collins Spring. Field personnel at various stages included Richard V. Ahlstrom, Charlotte Benson, Carl Halbirt, Dana Hartman, Don Keller, W.D. Lipe, and Robert Neily. Deepest appreciation is due Fred and Rebecca Blackburn, Joel Brisbane, and Steve Rivas, Grand Gulch Primitive Area staff of the Monticello District of the BLM, and to Les Sweeny of the Monticello BLM office, for their help and support during the course of the project.

The analysis and description of the human bone collected during the project is the work of Dana Hartman, physical anthropologist for the Anthropology Department of the Museum of Northern Arizona. The site descriptions were

written by Richard Ahlstrom, also of the Museum. The environmental section was outlined by Robert Neily, presently a graduate student at the University of Arizona. The maps are the work of Mike Donaldson of the Museum Anthropology staff. Appreciation is due W.D. Lipe for counsel and criticism during the writing of this report.

ENVIRONMENT OF THE GRAND GULCH AREA

On Grand Gulch, in western San Juan County in southeastern Utah, N.C. Nelson of the American Museum of Natural History wrote (1920a) that it was:

...one of the least frequented and probably also one of the most inaccessible parts of the United States. A great rift in the earth, tortuous and fantastic, with mushroom or toadstool rocks, monuments of standing, seated, and bust figures, hats atilt, and every conceivable form and shape on which imagination seizes or turns into semblances of life. But the picturesqueness varies greatly. The general course is northeast to southwest, but the hot sun makes one aware that we face in turn every point of the compass. The creek itself flows more or less independently of the canyon proper.

Richard Wetherill had written in a similar vein (1896-97) that Grand Gulch:

...is the most tortuous canyon in the whole of the southwest, making bends from 200 to 600 yards apart almost its entire length or for 50 miles, and each bend means a cove or overhanging cliff. All of these with an exposure to the sun had been occupied by either cliff houses or as burial places...Ingress or egress is very difficult, there being not more than five or six places where even footmen can get in or out of the canyon.

These descriptions, while conveying an impression of the canyon, vary somewhat in factuality. For example, there are a great many places where a reasonably active footman can get into or out of the canyon.

Grand Gulch is the main canyon draining Cedar Mesa and the larger Grand Gulch Plateau, defined here as the area of some 1000 square mile between the Red House Cliffs east to Comb Wash and between Elk Ridge south to the San Juan River (Gregory 1938). Like many areas of the Colorado Plateau, the Grand Gulch Plateau is an upland expanse of thick and essentially level sedimentary formations, deeply cut by a system of narrow canyons, having conditions of plant, animal, and moisture distribution such that it was favored for exploitation by human population groups for various if discrete periods during prehistoric times. The best known of these prehistoric groups, the Anasazi of around A.D. 1 to 1,250, depended heavily upon agriculture as a means of adaptation to the environment.

Grand Gulch, which flows southward and westward into the San Juan River, drains the western and central portion of the Grand Gulch Plateau and a small portion of Elk Ridge, a 9000 ft. highland area immediately north of the Plateau. Grand Gulch Plateau itself slopes from around 6,800 feet of elevation in the north, at the southern foot of Elk Ridge, to 6,000 feet at the southern escarpment of

Cedar Mesa, to 5,000 feet at Cedar Mesa's southwestern corner above the point where Grand Gulch debauches into the San Juan River, and to about 4,500 ft. in the southwest corner of the Plateau. The entire volume of the Plateau is composed of crossbedded Permian age Cedar Mesa Sandstone (Hintze and Stokes 1964), with the exception of the south and southeast portion of Cedar Mesa, where there are exposures of the relatively impervious Halgaito Shale, also of Permian age, which underlies the Cedar Mesa Sandstone. Grand Gulch itself is cut entirely in Cedar Mesa sandstone. Although it contains a fair number of thin shale beds, the Cedar Mesa sandstone is an excellent aquifer.

Annual rainfall in this area varies significantly from 12-13 inches on the northern margins of the Grand Gulch Plateau to about 10 inches in the southeast portion of the Plateau to probably somewhat less in the southwest corner. While highly variable from year to year, the main sources of moisture are the winter and late summer storms. Typically, 30-40 percent of the total annual rainfall occurs during the May to September growing season (U.S. Bureau of Land Management, 1967; 1967-68).

Being a relatively good aquifer, the Cedar Mesa sandstone allows for the occurrence of a number of good, permanent springs in the canyon systems cut into it. These

usually occur at points near the middle reaches of the drainages where the canyons begin to entrench, and in the bottoms of the larger canyons after full entrenchment. Some of these springs and seeps could possibly have allowed some small scale irrigation to be employed by the prehistoric inhabitants. Potholes, found throughout the canyon system after entrenchment, also provide caches of water lasting up to several weeks after storms.

The watercourses of the area begin as broad, shallow valleys, containing relatively deep aeolean soil deposits, in the upper reaches of the drainage system near the drainage divides. The stream courses undergo a marked steepening of gradient as they entrench themselves into the Cedar Mesa sandstone in their middle reaches. Here there is often very little soil other than colluvium resting in steep slopes against the talus below the heightening canyon walls. In some of the larger canyons, such as Bullet and Grand Gulch itself, there is some lessening of gradient lower in the middle reaches of the canyon, after entrenchment, and as a result there is some widening of the canyon bottom, with the occurrence of aeolian sheet soil deposits, in these parts of the canyons. After full entrenchment, the stream gradients flatten out further and there occur considerable deposits of alluvium. Grand Gulch, having the gentlest overall gradient of the canyons on Cedar Mesa,

shows a series of remnant alluvial terraces in its wash, the highest of which is over five meters in height over much of the length of the Gulch, with a maximum height of over thirteen meters. This high terrace level was apparently developed before Anasazi occupation of the area, with a general condition of alluvial stability or very slight aggradation obtaining during the Anasazi occupation period (Agenbroad 1974). A major degradational phase began near the end of or following the Pueblo III Anasazi period. Presently, arroyo wash action is removing fair portions of the remnant alluvial deposits.

Another important aspect of the environment critical for prehistoric adaptation to the area is the potential agricultural growing season. At the north end of Cedar Mesa, at over 6800 ft., the season is about 129 days, which is probably marginal in terms of the growing of southwestern maize types. Maize grown by the historic Hopi requires a growing season of approximately 130 days (Hack 1942). In the southern end of the mesa at around 6240 ft. and in most of Grand Gulch, there is a growing season of around 144 frost free days. The floor of Grand Gulch enjoys the advantage of being three to five hundred feet lower in elevation than corresponding locations on the mesa top, with consequently warmer temperatures, and it does not appear to be a locus of significant cold air

drainage for the higher areas of the mesa as are, for example, the canyons which dissect the Mesa Verde upland to the east of Cedar Mesa (Alden Hayes, personal communication). Furthermore, average low temperatures in the canyons may tend to be higher than on the mesa top because of the inhibition by the canyon walls of heat radiation into space. The canyon walls also absorb some heat on sunny days and radiate it back in the evening.

In contrast to the mesa top areas, which have dense stands of pinyon and juniper interspersed with flats of sage and grass, the rimrock areas and canyon walls are characterized by relatively sparse distributions of pinyon and juniper and by a much higher botanical diversity than on the mesa top. Mountain mahogany, cliffrose, gambel oak, singleleaf ash, serviceberry, yucca, and a host of smaller species are found on the rimrock and canyon sides. Cottonwood, willow, tamarisk, big rabbitbrush, and rushes are common in the canyon bottom, while sage and prickly-pear cactus are characteristic of the tops of alluvial terraces.

Economic wild plants that were available to the prehistoric inhabitants of the area include the pinyon pine, Indian rice grass, and possibly native stipa and wheat grasses. Also abundant is the sego lily, narrow and broad leaf yucca, 4-wing salt bush, and prickly-pear

cactus. With the mesa tops and deep canyons in close juxtaposition, the variety of economic plants available in a given area is considerable.

Wildlife is moderately abundant in the area. Small populations of deer occur in the canyon and canyon head areas the year around. Jackrabbit, cottontail, and coyotes are seen frequently throughout the area. Although bighorn sheep are not common now in the area, they were once probably common in the canyon and rim areas. Some may still enter the lower parts of Grand Gulch from the canyon of the San Juan River.

HISTORY OF ARCHAEOLOGICAL WORK IN GRAND GULCH

This section of the report attempts to outline the documented archaeological activities (scientific and otherwise) which have taken place in Grand Gulch between 1890 and the present. This treatment emphasizes the activities of Charles McLoyd, C.C. Graham, and Richard Wetherill, who in the 1890's removed a great deal of the portable cultural material available at the sites in Grand Gulch. Sources used in detailing this history include correspondence from Wetherill (1893-1902) to his sponsors, Wetherill's notes on his expedition of 1896-7 (Wetherill 1896-7), a catalogue by McLoyd and Graham of materials looted from sites in southeastern Utah in the early 1890's (McLoyd and Graham 1894), a set of notes by

N.C. Nelson (1920b) for the early history of Grand Gulch, and Nelson's notes (1920a) on his expedition to Grand Gulch in 1920. An important source of additional information were inscriptions, in scratches, charcoal, or bullet lead, left by these and other men in the sites that they visited (see Appendix A). These inscriptions were usually dated, and they provide an important complement and supplement to the documentary evidence of historic activities in Grand Gulch.

Along with the history outlined here, an attempt is made wherever possible to relate documented activities to the disturbances to the sites actually observed and recorded during the course of this project's field work in Grand Gulch. Although only a small portion of the observed disturbances could be so identified, the identified associations in certain cases were quite unambiguous.

The area of Southwestern Colorado and Southeastern Utah, if not Grand Gulch itself, had come, as an object of interest for natural history and archaeological studies, into national awareness by 1878 with the publication of the Hayden Survey findings in the Tenth Annual Report of the U.S. Geological and Geographical Survey of the Territories. The establishment of the community of Bluff by Mormon settlers from Southwestern Utah in 1880, after their crossing of the Colorado at Hole-in-the-Rock and

their crossing of Cedar Mesa at the north end of Grand Gulch (Miller 1959), contributed significantly and probably decisively to making Grand Gulch known and accessible. The first known removal of archaeological material from Grand Gulch apparently occurred before 1890, although little is known of the nature of this activity or of the number of specimens taken (Nelson 1920b). No inscriptions from this period were seen during this project. The larger scale activities of digging and collecting carried out during the winter of 1890-91 by Charles McLoyd and C.C. Graham of Durango, Colorado is somewhat better documented (Nelson 1920b). These men dug in a number of caves in Grand Gulch in the section of canyon between Kane and Bullet Canyons, as indicated by inscriptions in the caves seen during this project and by Richard Wetherill's correspondence to the Hyde brothers in 1894 (Wetherill 1893-1902). That McLoyd and Graham probably also dug in caves below Bullet Canyon is indicated by Wetherill's statement in his letter of Feb. 4, 1894 that he had just sent two of his party fifty miles down Grand Gulch from Kane and that they had discovered several caves (out of the many that they must have seen) that had been "overlooked entirely by previous explorers". Wetherill in his notes of 1896-7 states that McLoyd and Graham had covered the area around "Grand Island" (Polly's Island)

and that their work was "very complete".

Specific inscriptions attributable to the McLoyd-Graham activities were seen at sites NA12,648 (Green Mask Site), NA12,652, and NA12,653 (Perfect Kiva Site). Wetherill's correspondence further indicates that McLoyd dug in the rooms at site NA12,651 (Turkey Pen Site), removed a number of mummies from site NA12,650, and dug at a site a few miles further up Grand Gulch (possibly the large site by the junction at Kane Wash). This represents a minimum inventory of sites worked by McLoyd and Graham. It can be assumed that they dug at a great many others as well. A better assessment of the extent of their activities could be obtained by a more thorough study of the historic inscriptions in Grand Gulch.

With the exception of at least some of the disturbance in the rooms at site NA12, 651, it has not been possible to associate any of the pits mapped during this project with the McLoyd and Graham activities. Nor is it possible at this point to say with certainty which of the nine pits identified in the rooms at site NA12,651 are the work of these men.

The activities of McLoyd and Graham appear to have been motivated in part by the strong nineteenth century spirit of relic hunting and in part by the profit that could be realized by the sale of prehistoric artifacts

and relics to collectors, exhibitors, and museums. Their first collection was sold in Durango and exhibited in Chicago, presumably at the World's Fair of 1893. This material, very poorly documented, now corresponds in part to the Hazzard Collection at the University of Pennsylvania (Sharrock 1963). A second collection, possibly obtained at the same time as the first, was sold to John Kunz of Aztec, New Mexico, who sold it a short time later to the American Museum of Natural History.

McLoyd and Graham (1894) published a catalogue and description of their "Very Large Collection" which contains entries for nearly four hundred items (some of which were obtained in canyons other than Grand Gulch), plus a number of observations concerning the collections and the cultures they represent. It may be that their activities in Grand Gulch covered more than the winter of 1890-91. At site NA12,648 is an inscription reading "J.H. Graham 1892", which may possibly indicate later activity. Likewise at NA12,652 the double inscription of "Chas. McLoyd" written above "C. McLoyd 1891" may indicate more than one season's activity. Richard Wetherill, in fact, in his notes of 1896-7 states that McLoyd and Graham spent two seasons in Grand Gulch. An inscription dated 1892 was found at site NA12,651, but unfortunately it was otherwise unreadable.

In the winter of 1893-4 (Jan. and Feb.) Richard Wetherill,

of Mancos, Colorado, dug and collected extensively in Grand Gulch under the sponsorship of Fred and B. Talbot B. Hyde, friends of the American Museum of Natural History. Although the field catalogue survives, the field notes from this expedition have apparently been lost, so that the exact extent and location of these activities is difficult to assess. However, inscriptions from this expedition were found at six of the nine sites recorded during the present project, NA12,655, 12,641, 12,653, 12,654, 12,648, and 12,652. These, in fact, were all the sites that were recorded by the present project between Shieks Canyon and the "Big Panel" about four miles below Collins Spring Canyon. In this connection, Richard Wetherill's letter to Talbot Hyde of Feb. 4, 1894 indicates that the lower part of Grand Gulch, below Polly's Island to at least as far as site NA12,655, was reconnoitered by two men, apparently John Wetherill and Y.Y. Billings, who did only enough digging to ascertain the potential of the sites that they found. Wetherill's activities of 1894, then, appear to have been concentrated in the middle portion of Grand Gulch, probably via the Bullet Canyon access from Bluff. Wetherill's notes from 1896-7, which are available, help somewhat in establishing the range of his 1894 activities. These notes from 1896-7 indicate that Wetherill worked, in 1893-4, caves at least five

miles (his estimate) below "Grand Island" (Polly's Island). Judging from inscriptions observed in Grand Gulch, five men besides Richard Wetherill were connected with the 1893-4 expedition: John Wetherill, Y.Y. Billings, James L. Ethridge, H. French, and E. Knowles.

Perhaps in part because of the Hyde brothers' sponsorship, or because of earlier experience at Mesa Verde, Wetherill made efforts to record provenience data on his collections and to catalogue them in a permanent manner. Although his provenience control appears poor indeed by present standards, it was quite up to the standards of the late nineteenth century, when archaeology was in its early formative period. This is so at least in theory and in Wetherill's intent. In discussing his mapping, photographing, and cataloging methods in correspondence to Hyde in early 1893, Wetherill (1893-1902) states that:

I think you will find this will meet all the requirements of the most scientific but if you have any suggestions whatever I will act upon them. This whole subject or rather the subject of it is in its infancy and the work we do must stand the most rigid inspection and we do not want to do it in such a manner that anyone in the future can pick flaws in it.

The actual quality of Wetherill's field work may be another matter. In his notes for his later 1896-7 season in Grand Gulch Wetherill states that "From the camp (No, 5) parties were sent out in every direction to hunt up fresh digging with instruction to bring in everything found stating

where it came from...Many small things were picked up." This does not indicate a particularly rigorous approach to field collecting.

In addition to Wetherill's activities in Grand Gulch in 1894, there was apparently other digging going on in the area. N.C. Nelson (1920a), writing in 1920, states that Emory Noel, Billy Wells, and Jim Jones worked in Bullet Canyon between 1893 and 1895 and made a "fine large collection". The disposition and whereabouts of that collection are not known.

In either the summer of 1895 or the spring of 1896, the Hyde brothers accompanied Richard and Clayton Wetherill to Grand Gulch and did some digging for a period of three weeks (Nelson 1920b). No evidence of this activity was identified by this survey.

Dr. T.M. Prudden, accompanied by Wetherill, collected in Grand Gulch in the summer of 1896 (Nelson 1920b). Nothing was published directly on this work, however much it may have amounted to, although it undoubtedly influenced the development of thinking in Southwestern archaeology because of Dr. Prudden's early position in the field.

During the winter of 1896-97, Richard Wetherill led a second three month expedition into Grand Gulch, financed by C.E. Whitmore and George Bowles, who apparently were

hoping to regain their investment upon the sale of the collections made (Wetherill's letter to Talbot Hyde of Feb. 15, 1897). Wetherill's (1896-7) field notes and expedition summary for the activities are available and informative, if not detailed. The persons in Grand Gulch at that time, in addition to Richard Wetherill, Whitmore, and Bowles, were Levi Carson, E.C. Cushman, E.M. Tompkins, Clayton Wetherill, Hal Heaton, George Hangrove, James L. Ethridge, O.H. Buck, C.C. Mason, Bert Hindman, and Mrs. R. Wetherill. Inscriptions by various of these persons which appear to be attributable to the 1896-7 season were found at sites NA12,649, 12,652, and 12,654. Furthermore, Wetherill's notes indicate activities at these same sites, with the exception of NA12,654, plus sites NA12,650 and 12,648 and a number of other sites not covered by the present project. The total range of that season's activities in Grand Gulch was from Kane Wash to about five miles below "Grand Island" (Polly's Island). Wetherill described eleven caves between Kane and Sheiks Canyon. It may be inferred from this that his activities of 1896-7 were concentrated in this area of Grand Gulch. His notes also indicate work in five caves in Bullet Canyon which had previously been worked in 1894, and which yielded in 1897 a limited amount of material. Less work and less results during 1896-7 are indicated for

the area downstream from Bullet.

Because of Wetherill's notes, it is possible to associate some specific digging and pits identified during this present project with the activities of 1897. Following is a summary of the associations that can be made.

At site NA12,649, Wetherill's map shows a 25 x 25 ft. square test pit, extending out from the cave's back wall, which corresponds with pit No. 2 (site map, Appendix A) of the present project. His notes describe this as a "cut" through a debris pile, part of which may correspond to the "sandy rise" of the site map (Appendix A). From the presently remaining indications, the cut appears to have been an uncontrolled pit roughly circular in shape and four or five meters in diameter. There is no indication of how deep it may have been.

Although no pit was noticed there, Wetherill indicates that a burial was removed from under the rock just south of location 3 (site map, Appendix A). Closer examination might result in the identification of the spot where the burial was removed.

At Site NA12,650, no recognizable trace whatsoever was found of the "pot holes" (hardpan cists) that Wetherill observed in the southern portion of the cave. These, about ten in number in the area between locations 1 and 12

(site map, Appendix A), have apparently been obliterated either by subsequent looting or trampling. The same applies to the cists indicated by Wetherill in the back central portion of the cave in the area of pits 20 through 23 (site map, Appendix A). The area including pits 1 through 13 is indicated as having been thoroughly worked over, in part by McLoyd and Graham, and by Wetherill in 1894 and 1897. Some of the pits identified by this project, pits 1 through 6 in particular, appear rather more recent than these activities and may be the result of looting attempts in this century. In any case, the entire ground surface at least between pits 1 and 8 had been thoroughly dug over. Finally, Wetherill indicates a location where a headless mummy was removed that corresponds with pit A25 (site map, Appendix A).

At site NA12,651, the "pot holes" (cists) noted by Wetherill are still in evidence at the northeast end of the site. These were worked by Wetherill, as was the kiva in the northeast part of the site. The roof of this kiva, very little of which now remains, may have been removed by Wetherill or by McLoyd and Graham, or it may have been torn back by later looters of this site. Wetherill mentions working down in the midden fill to a depth of seven feet without finding the bottom, but he gives no indication of the location of this activity. This may

correspond to pits such as 20, A1, A2, A24, or B6 (site map, Appendix A), but it is not possible to establish this certainly. Although it is possible to see that some pits are older than others, sometimes with certainty because of superposition, it is very difficult to give a real estimate of absolute age to a looters' pit. While some pits and associated backdirt look fresh, which may mean that they are fairly recent, more pits look quite smoothed in outline, indicating either greater exposure to the very strong winds which blow frequently in Grand Gulch or greater age. However, the difference in appearance of a pit that is fifteen years old and one that is eighty years old may not be great.

Not to be confused with Wetherill's possible activities, pit All corresponds to the work done under the supervision of R.G. Matson of the University of British Columbia for the Cedar Mesa Project in 1972. An outline remains of the two meter deep test pit from which soil samples and a midden fill profile were obtained. The bottom of the fill was not reached by this excavation, although the excavators thought that sterile soil would have been encountered if the test pit had been carried a few centimeters deeper (W.D. Lipe, personal communication).

Finally, Wetherill mentions, somewhat cryptically, that the rooms on the upper level of the site were

"thoroughly cleaned". These were photographed but not mapped or collected during this present project.

At site NA12,648 (Green Mask Site), it is possible to associate a number of locations discussed or mentioned by Wetherill with pits identified and labeled by the present project. Wetherill, writing in 1897, refers to some digging which had been done in 1894. To begin, the area in front of the soot outline just to the northeast of Feature B had been dug over by "H.E.E." (an Ethridge?). This work would correspond to pit A20 and possibly to pits A18, 19, 23, and 25 as well. In the center of the site, Wetherill notes that three "pot holes" (hardpan cists) had been dug out in 1894. One of these, pit 24, was identifiable. If the other two still exist, they must be under the backdirt piles of pits A18 and A20. In either 1894 or 1897, Wetherill removed two mummies, the "princess" and "companion to princess", from locations below the three large white human figures. His map showed these locations as being within a couple of meters to the northeast of pit 24 (a cist). This area is now covered with backdirt. In Feature B, Wetherill dug in the floor and found a cist in the northern corner against the rear wall of the cave. A child's skeleton with basketry, fur cloth, and bead strings (Wetherill's lot No. 471) was found in this cist, which corresponds to

pit A22 of this present project (site map, Appendix A). With regard to Feature C, Wetherill noted that the roof had fallen in, and that the sooted area on the rear wall had been plastered over "recently" (The plastering may in fact be aboriginal). A skeleton was removed by him (also labeled 471) from the floor, from what would be pit B20 (site map, Appendix A). At the southern end of the cave, Wetherill removed "fragments of human beings" from beneath the drawings of the large red headless human figures. From a comparison of maps, this probably refers to pit B23, although pit B22 and pits (cists) B24, B25, and C1 may also reflect this work. From his notes, it appears that Wetherill probably actually dig in more locations than he specifically mentions, and that he recorded only those locations that yielded noteworthy materials. Also, the rather extensive recent looting attempts have undoubtedly obscured some traces of Wetherill's digging.

Wetherill (1896-97) did little work at site NA12,652 in 1897, having covered it "so thoroughly" in 1894. However, the disturbance of the small midden at Feature A was done in 1897, yielding little material. In the main part of the cave, the remains of a child were removed in the front central rock fall area. The remains were wrapped in a feather blanket. It is not possible to

relate this burial with any particular pit identified during this study, as Wetherill's description is ambiguous and is not accompanied by any map or drawing. Likely possibilities, however, are pits 19 and 24 (site map, Appendix A). Wetherill's notes indicate that he dug in both 1894 and 1897 in the southwestern area of the cave in the area around and probably including pit 53. A burial ("cut-in-two") was removed from the same area of the cave. During the present study, burned bone was recovered from the surface in the area of pit 52 (see the section of this report covering the human bone material, pg. 164). Wetherill (1896-97) reported having removed a "burned skeleton" from this area in 1894 to which he assigned the number 685. Wetherill noted that an area of 12 by 20 feet, 4 feet deep, remained to be worked in the area of the burned skeleton. His notes also indicate that the cists, identified as pits 61 and 62 in this study, were not dug by him but that they had contained burials, since there was human bone "lying about". They may have been dug by McLoyd and Graham in 1891.

Wetherill's 1896-97 notes do not cover any of the three sites covered by this study in Bullet Canyon, nor site NAl2,655 in lower Grand Gulch. It is therefore not feasible to relate any of the pits identified by this study at these sites to Wetherill's activities, although

a number of the pits here identified no doubt were dug by Wetherill or his men.

Following the winter of 1896-7, Richard Wetherill changed his attention to Chaco Canyon in New Mexico, feeling that Grand Gulch was "practically exhausted" of material of interest to him. No more documented digging was done in Grand Gulch until 1920, when N.C. Nelson of the American Museum of Natural History conducted a fairly thorough survey of Grand Gulch from below Collins Spring Canyon to above Kane Canyon. Nelson was accompanied by John Wetherill, B. Talbot B. Hyde, Albert Smith, Oliver Ricketts, and Atachenaes, a Navajo. This party spent two weeks in Grand Gulch. Apparently they did only a little digging, which according to Nelson (1920a) was "sufficient to afford examples of the physical type of the former inhabitants as well as of the principal features of their culture." Nelson recorded six of the sites covered by this present study, NA12,648, 49, 50, 51, 52, and 53. At Site 12,649, inscriptions by Nelson, Wetherill, and Hyde were seen. "Some digging" by Nelson is indicated for site NA12,650, but without any indication of its location within the site. The inscription "J.W.", similar to an inscription at Spruce Tree House at Mesa Verde, was seen during the present study, carved into a rock at the site, possibly by John Wetherill. It is

unclear whether or not Nelson did any digging at the Green Mask Site, NA12,648. He definitely did no digging at the Perfect Kiva, site NA12,653. Nor is any digging specifically indicated for sites NA12,651 and NA12,652.

For the period following 1920, no inscriptions were seen during this present project which were dated earlier than 1959. A brief survey, however, had been conducted in Grand Gulch in 1954 by M.J. Harner of the University of California at Berkeley (Harner 1954). None of the sites recorded by Harner were studied during this present project. Harner's activities were focused on Kane Canyon, Step Canyon, and Grand Gulch at Collins Spring Canyon.

In 1965, some stabilization work was conducted in Grand Gulch, below Kane, under the direction of Gordon N. Keller of Utah State University. Although no evidence of this activity was noticed by this present project, it is possible that some may have been missed, as architectural details were not the primary object of interest of this project. The notes and photographs made by that stabilization project should be consulted for detailed information on its activities and the sites covered by it. We did not find this possible to do prior to the preparation of this report. The files in the BLM District office in Monticello also contain survey records made at various times by BLM personnel.

The next documented work which was done in Grand Gulch was that of W.D. Lipe of the State University of New York at Binghamton, who surveyed in greater detail a number of the sites mentioned by Wetherill and Nelson, as well as a number of newly recorded sites between Kane and Bullet Canyons. This work was begun in 1967. With the exception of site NA12,655, all the sites covered by this present project were inventoried by Lipe in 1967 and 1969. In 1972, R.G. Matson conducted the small excavation at Site NA12,651, previously noted as part of the Cedar Mesa Project, directed by him and Lipe.

During the fall of 1974, a study of the building sequence and organization of Pueblo sites in Grand Gulch between Kane and Bullet Canyons, based on detailed architectural and dendrochronological data, was conducted by the Cedar Mesa Project under the direction of W.D. Lipe (1974). A complete inventory of sites in Grand Gulch and side canyons was made from Kane to a point two miles below Todie Canyon in conjunction with this study.

FIELD PROCEDURES AND SUMMARY OF RESULTS

Because of the generally elongated shape of the shelter areas in which the sites were located, mapping of the sites was done by using 50 meter baseline segments for horizontal reference control. Actually, this was a measure of on-the-ground distance. Where the ground

slope was enough to make a significant discrepancy between true horizontal distance and ground surface distance, the angle of the baseline from horizontal was noted. At each site, a grid system was laid out with reference to each baseline segment. At the majority of the sites, these grids consisted of two meter square units covering the entire area being recorded at each site. At four sites, NA12,651, 12,652, 12,653, and 12,655, four meter square units were used because of the area being recorded and the particular distribution of surface artifacts over that area. The grid system points served as general overall mapping references. In addition, taped measurements were taken of particular features of importance. The grid squares also served as artifact collection units, providing systematic control over the collection of artifacts and recording of their spatial distribution. At site NA12,641, because of the abundance of skeletal material, collections were also made with respect to designated looters' pits.

The ends of the baseline segments were marked on the back walls or overhangs of the shelters with a small "#" sign. In this way any future work done at any of these sites can be unambiguously referenced with the present work and the maps of this work in Appendix A. The sites were mapped on 27" x 24" sections of graph

paper to a scale of 1 inch = 2 meters, one baseline segment at a time. These maps were then reduced at the Museum to a scale of 1 inch = 4 meters and inked on mylar for reproduction as complete site maps.

All pits and backdirt piles at the sites which could be identified as having been done in historical times were identified and mapped. Included were pre-historic storage cists which appeared to have been dug into in historic times. The identified pits, which are in this report generally referred to as looters' pits, were labeled with brass or aluminum tags bearing numbers corresponding to the numbers given them on the site maps. A tag was buried in each pit a few inches below the surface of the existing pit depression.

A full set of photographs, in black-and-white and color, was taken of each site, both before and after work was done at the site. A representative selection of the black-and-white photographs is reproduced in Appendix D. Appendix E is a representative selection of color slides. This appendix is included only with the primary copy of this report, which is being sent to the U.S. Bureau of Land Management, Denver Service Center.

Upon completion of fieldwork all materials collected by this project were processed and curated at the Museum of Northern Arizona. Furthermore, preliminary analyses

were carried out on the material, the tabulated results of which are contained in Appendices B and C. The human skeletal material received the most complete study, being analyzed with respect to anatomical designation, pathologies, age, sex, and other notable characteristics, and minimal individual numbers. The ceramic material was analyzed typologically into ware and type, principally following Abel (1955), Colton (1955), and Rohn (n.d.). Some descriptive categories were established for sherds which were not assignable within the established typological categories. In particular, the class described as "corrugated, quartz plus other temper" may be a variant of Mesa Verde Corrugated and appears to be most strongly associated with Pueblo III contexts. The lithic material was analyzed into several broad descriptive classes of ground and chipped stone. Perishable material was sorted into artifactual and non-artifactual divisions and then analyzed into descriptive categories based on material type and the treatment, for the artifactual perishables, that the material had undergone prehistorically.

Of the nine sites covered by this project, three (NA12,641, 12,650 and 12,654) are principally burial caves having limited storage features and no habitation features. The burial situation and the artifact assemblages obtained from these sites indicate that these burial areas were

used primarily during the Basketmaker II period rather than later Pueblo times. Four sites (NA12,648, 12,651, 12,652, and 12,653) are primarily habitation sites containing various combinations of storage, living, and ceremonial structures and areas. The bulk of the material and features at these four sites is from the Pueblo II and III periods, although Turkey Pen (NA12,651) shows evidence of long occupation, with Basketmaker II period hardpan storage cists and a fair number of Basketmaker III period sherds in addition to the Pueblo II and III period ceramics. Site NA12,649 appears to be a primarily Basketmaker III utilized area. This may have been a habitation area, although little evidence of site function remains. Wetherill (1896-7) reported removing a burial from this site. Finally, site NA12,655 appears to have been used primarily as a storage area, possibly for most of the duration of Anasazi occupation of the area. Remains of hardpan cists, slablined cists, and masonry and possibly jacal storage structures were recorded at this site. A small amount of burial material was also recovered.

SUMMARY OF ANALYSIS OF HUMAN SKELETAL MATERIAL

Introduction

The amount of human skeletal material recovered from each cave on the Grand Gulch Clean-up Project varied

immensely; one site, NA12,641, produced the remains of at least 42 individuals, whereas site NA12,653 contained no human bone at all. In one of the caves, site NA12,649, the human bone was concentrated within a 12 square meter area; the remainder of the sites had bone scattered throughout the cave. Altogether, the remains of 98 identifiable individuals of varying ages were recovered (for a complete inventory of the skeletal material from each site, see Appendix C).

Cranial and Dental Remains

Unfortunately, cranial remains are very scanty and fragmentary. Only one unfragmented skull is present, and it is missing the face. Apparently, the skulls were either removed or broken by the early collectors or by later vandals. None of the skull fragments or the one skull displayed any discernible evidence of artificial deformation.

A number of loose teeth and several teeth in place are present. Because of the incomplete condition of many of these teeth, however, and the unreliability of sex and age determinations on teeth, generalizations about the dental condition of this collection would be meaningless. Nevertheless, a summary of the dental remains should be presented. Twenty-one teeth and three fragments were found, and with the exception of one fetal

incisor, all of these teeth display the wear typical of groups subsisting on stone-ground foods. Thirteen of the teeth are assignable to six individuals; one of these individuals has a badly impacted maxillary tooth (probably a premolar), one displays maxillary third molar agenesis on the right side, and one individual exhibits four mandibular abscesses. The remaining eight teeth and three fragments could not be assigned to an individual. One of these teeth, a maxillary left second molar, has a large interproximal neck carie; one of the fragments, a tooth root, is also carious.

Pathologies

In the bone material collected during this project, osteophytosis, small bony outgrowths at the joints, is by far the most prevalent pathology. Nine individuals display osteophytic growth in varying degrees and at different locations. Four cases of vertebral osteophytosis, a condition usually indicative of vertebral stress and localized arthritis, are present. One of the individuals exhibiting osteophytic growth possibly had a rheumatoid condition (Individual VI, NA12,650). Unfortunately, the remains of this individual are too incomplete to make any further speculation on this observation.

Five individuals exhibit fractures; these fractures appear on a rib, metacarpal, fibula, humerus and ulna.

One infant (Individual I, NA12,652) displays a left rib fracture which had not fully healed at the time of death. It is generally regarded that fractures were a common affliction among the cliff-dwelling Anasazi. Five instances of fracture among the 98 individuals under study here would actually be a low rate of occurrence. However, it cannot be assumed, without statistical tests of significance, that the skeletons from this collection are complete enough to maintain that this is a valid estimate of incidence.

A final pathological condition should be mentioned because of the genetic implications. Site NA12,654 produced the remains of nine individuals, and two of these skeletons exhibit spina bifida, a condition in which the two sides of the vertebral arch fail to unite. In one of these cases (Individual IV, an adolescent), the sacral canal is exposed the entire length of the sacrum; in the other specimen (Individual II, a 12 to 13 year old child), only the third and fourth sacral elements are present, but the arch is unfused in both segments. No vertebrae are present for either individual, so the amount of involvement of the rest of the vertebral column cannot be determined. Because there is no closure of the sacral canal in either case, there is a good possibility that these two individuals represent cases of spina bifida

cystica. This type of spina bifida is a serious, often lethal, condition resulting in a protrusion of the spinal cord; the severity of this defect would account for the early age of death of these individuals. The other manifestation, spina bifida occulta, is also a non-fusion of the vertebral arches, but there is no herniation of the cord. As spina bifida cystica is believed to be inherited as an autosomal recessive, the expression of the pathology in these individuals are probably the result of inbreeding, in a general sense, at some generational level (Bennett 1972:436). This could have been occasioned by any of the several forms of cousin marriage, or in some other, perhaps random way in a small population.

A number of other pathologies occurred in either one or two cases each. Neither osteophytosis, fractures, or the various other pathologies have any apparent correlation with time period.

Cremation

During the analysis of this material, it was discovered that seven individuals from four different sites displayed evidences of burning. As the practice of cremation has been noted only once for the Mesa Verde Anasazi (Morris 1924:186-187), these individuals were carefully reanalyzed. The reanalysis revealed that the bone from six of the individuals had been burned under

conditions other than cremation (accidental burning, secondary burials, etc.). However, Individual I from NA12,641 consisted of numerous pieces of very fragmented bone; this bone displays the distinctive coloration, fracture patterns, warping and friability characteristic of a complete cremation. The bone was found scattered over a relatively small area; whether it had originally been contained in a burial vessel is not known. Excavation could possibly answer this question and shed light on this rather interesting and uncommon discovery.

RECOMMENDATIONS FOR RESTORATIVE WORK

For the purpose of conserving the cultural resource represented by the sites studied during this project, protecting their scientific potential, and enhancing their interpretive value and safety to the general public, recommendations are given in the following paragraphs for restorative measures which may be considered desirable for these sites. These recommendations are based on the condition of the various features of the sites, the potentiality of their deterioration through environmental and human agencies, and the possibilities for and consequences of various restorative actions. General recommendations are augmented by site-specific recommendations where it is felt appropriate.

In considering possible restoration measures to

the floor surface of the site caves, the disposition of looters' pits and the backdirt associated with them is of high importance. Restoring the floor surface to something near the original, prehistoric profile is desirable in that the invitation to further looting would be reduced, the character of the sites would be in some measure restored, and as yet undisturbed volumes of cultural fill now exposed at their edges by the looters' pits would be protected. Furthermore, what in some cases is a potential hazard to visitors would be removed. On the other hand, unfavorable aspects of such restoration are the possible introduction of foreign material into the cultural fill and the additional disturbance to the cultural fill that would result from this restoration.

In addition, areas of undisturbed cultural fill now protected by backdirt would lose their protection. A further consideration is that pits left by the early excavators are of considerable historic and archaeological importance in their own right, potentially providing information on early activities in the area and on the provenience of the many artifacts obtained during those activities. Conservation of the evidence of the early excavations is desirable in the event that the notes of Wetherill's 1893-4 activities, currently unavailable, are ever found. The older pits, for the most part, have

the good feature of having a somewhat softer profile than the more recent ones, and there is therefore less of a need to carry out restorative work on them.

Given these considerations, it is apparent that careful thought must be given to whether or not ground surface alterations should be carried out at particular sites, and to which areas of surface will be altered at sites where some modification is deemed desirable.

In order to minimize the unfavorable aspects in cases where surface modification is seen as desirable, it is suggested that, in as far as possible, the backdirt from looters' pits be used to refill the pit from which it came. This is preferable to bringing in soil from outside the site caves in that no foreign soil types or foreign pollens will be introduced into the sites. The considerable logistic problem of bringing in suitable fill from outside the cave could also be avoided in this way. This latter problem would be twofold, including both the selection of fill homogeneous enough and free enough of organic material to risk bringing into the site areas, and the transportation of the fill up the sometimes troublesome ascents to the sites.

If the option of using pit backdirt to soften the surface profile in pitted areas is chosen, several points are to be considered. Not all backdirt piles are directly

or unambiguously associated with particular pits, nor do all pits have associated with them amounts of backdirt adequate to fill them. In general, however, the matter can be dealt with by using directly associated backdirt for the pits it is associated with, and by dividing unassociated and ambiguously associated backdirt proportionately among nearby, possibly associated pits. For example, if a backdirt pile is associated with two pits, the dirt from it should be apportioned between the pits as best suits the filling requirements of the pits. In order to minimize the additional confusion of provenience that will result from relocation of the backdirt, it is recommended that backdirt be screened before it is put in any pit. Artifactual and organic material should be removed and labeled as to backdirt pile number and location. Very large backdirt piles should be divided widthwise and/or lengthwise into two or four labeling units. Screening the backdirt in this way will also provide for a clearer stratigraphic separation between undisturbed fill and pit fill. There are a few cases, for instance at the Perfect Kiva site, where pit backdirt contains large clumps of unbroken midden. These should probably be replaced unscreened in the proper pit, and a record of this should be made for the pits in which this is done. In this way, intact volumes of midden can be

preserved rather than broken down unnecessarily. The final judgment on individual cases, however, will probably have to be made in the field as restoration measures are being made.

As an aid in maintaining a stratigraphic distinction between original, undisturbed floor fill and pit fill, it is recommended that heavy duty plastic sheeting be placed in the bottom of the pits before any new fill or backdirt is placed in them. This sheeting should extend at least two thirds of the way up the sides of the pits. It should not, however, extend completely up to the edges of the pits. It would be difficult to bury properly, in such a way that it would not later become visible, if this were done. Because of the soft nature of the cave fill, any plastic not thoroughly buried is likely to be exposed by the action of wind or foot traffic. This would create an unsightly condition, and would provide a temptation for visitors to pull up the plastic, or worse, to dig it up to see why it was there.

If backdirt is used in this manner to refill the looters' pits, it is probable that some pits will still show, perhaps markedly. If this is foreseen to be a problem, clean sandstone blocks from outside the sites could be used to stretch the available backdirt. These would provide necessary volume without introducing an

abundance of foreign contaminants.

At a number of sites there are sloping midden areas subject to heavy erosion because of foot traffic over them. This is especially the case at the Perfect Kiva site, site NA12,650, and parts of the Turkey Pen site. While it would be desirable to control access so that these areas received no traffic whatsoever, this may not be a practical possibility. More fruitful attention might be given to efforts to direct or enhance access around critical areas or through them at selected, limited points, perhaps sacrificing a small area of midden to protect the major portion. At the Green Mask site, the northeast end of the larger cave appears, at least, to be sterile and is a camping spot for hikers in the canyon. Access from this area through to the immediately adjacent northeast part of the actual site could easily be restricted by placing a fair-sized rock in the cleft between the cave wall and the large boulder fallen away from it. This would channel access to the site through one trail running by pit C13, location 28, and pit 13.

At two of the sites covered by this project there are structures badly in need of stabilization. At the Perfect Kiva site attention has already been given, this fall, to the structures behind the kiva and to the kiva itself (see Fig. 23, 24, Appendix D). If possible, an

access across the kiva area should be developed, in conjunction with this work, so that traffic across the midden area in front of the kiva is lessened. This would probably best be located between the kiva and the structure behind it, Feature H, by sacrificing short lengths of the drywall designated Feature F (see Fig. 23, Appendix D).

The second site with structures in need of attention is the Green Mask site. Here sections of Features A, B, and C are in imminent danger of collapse because of undercutting by looters' pits (see Fig. 7, 8, Appendix D). The affected sections of wall need to be footed firmly and the pits weakening the walls filled in.

As a final recommendation, it is suggested that the pictograph 1.5 meters high on the rock wall behind and above Feature D at the Perfect Kiva site be restored. This pictograph, done in light green paint, is breaking up in part, and sections of the sandstone slab upon which it is painted have fallen to the cave floor beneath it. These pieces could very easily be cemented or glued back in place, using appropriate materials, and the entire pictograph restored. This should be done before the broken pieces are crushed or carried away.

A measure that would probably pay large dividends in site protection with respect to the general visiting

public is the development of a interpretive brochure or trail guide which could be made available to visitors to Grand Gulch. This could contain, in addition to information on the archaeological resource of the Gulch, warnings of the fragile nature of parts of that resource and an invitation to participate in its conservation, through care and respect.

It should be emphasized that careful records and notes should be made of any restorative measures carried out on these sites, with mapping and photography used where appropriate. The actual work, for the most part, should be carried out under the direction and supervision of both a trained archaeologist and a trained specialist in restorative work.

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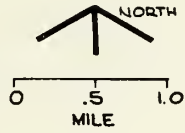
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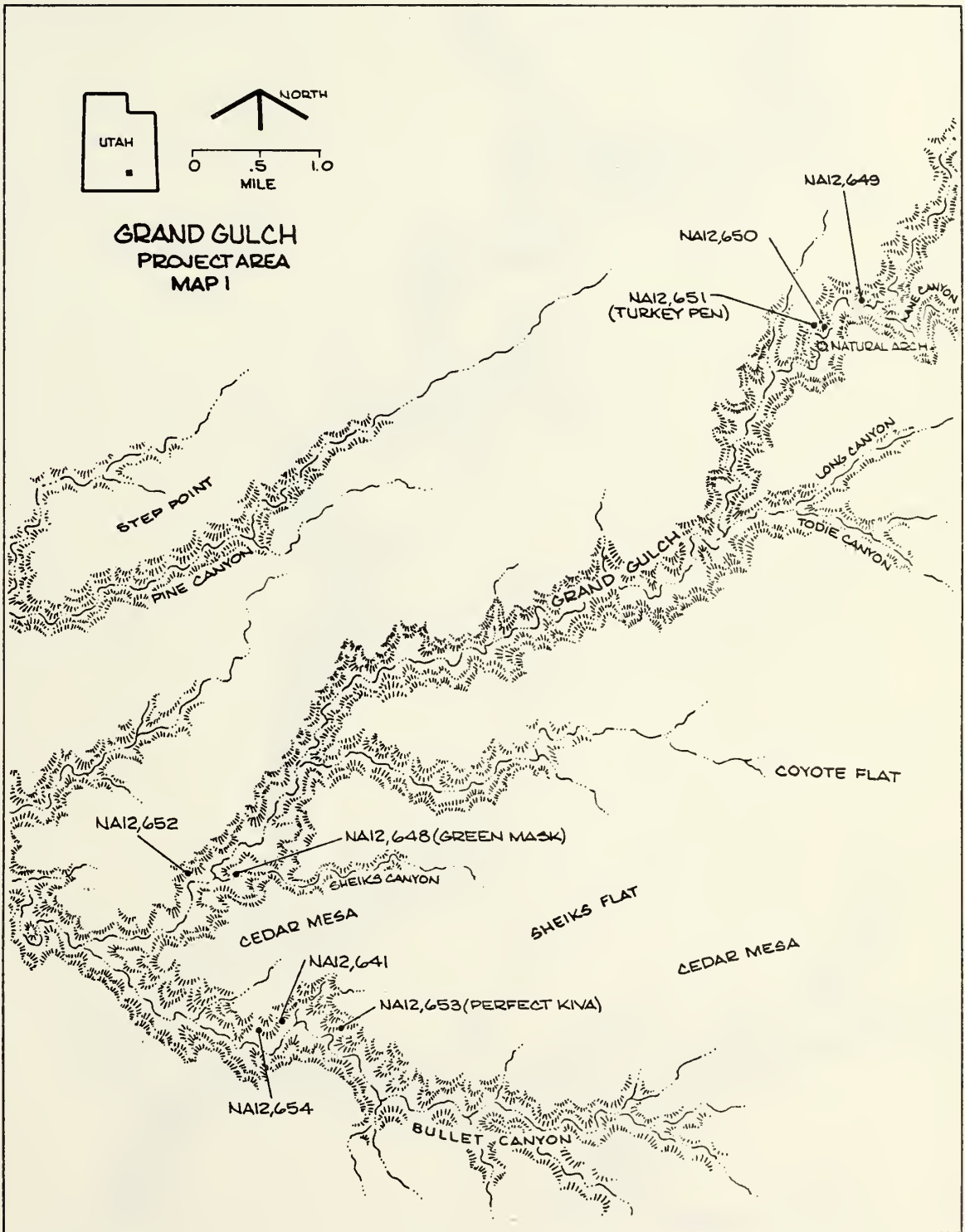
APPENDIX A
Site Maps and Descriptions

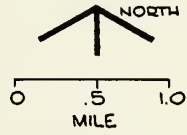
For ease of reference, the site descriptions are arranged by site number. Geographically the sites cluster into four areas. The first of these is the stretch of Grand Gulch just below Kane which includes sites NA12,649, 50, and 51. The primary water source in this area was found to be in the wash bottom just below Kane. The second cluster, at Sheiks Canyon, includes sites NA12,648 and 52. The principle water source in this area is a spring in the bottom of Sheiks a hundred meters or so above site NA12,648. The third cluster of sites is located in the mid-portion of Bullet Canyon and includes sites NA12,641, 53, 54. Abundant water was found in the wash bottom just below site NA12,641. The fourth area, in Grand Gulch 2.2 straight line distance miles below the mouth of Collens Spring Canyon, included site NA12,655. This site is just downstream and across from the "Big Panel" pictograph site. No water was found in the immediate vicinity of this site.

In addition to the Museum of Northern Arizona NA series site numbers, other designations which have been used at these sites are included in parentheses. The GG and CM numbers are those used by W.D. Lipe and the Cedar Mesa Project. The 42Sa series numbers are the newly assigned Utah state numbers.

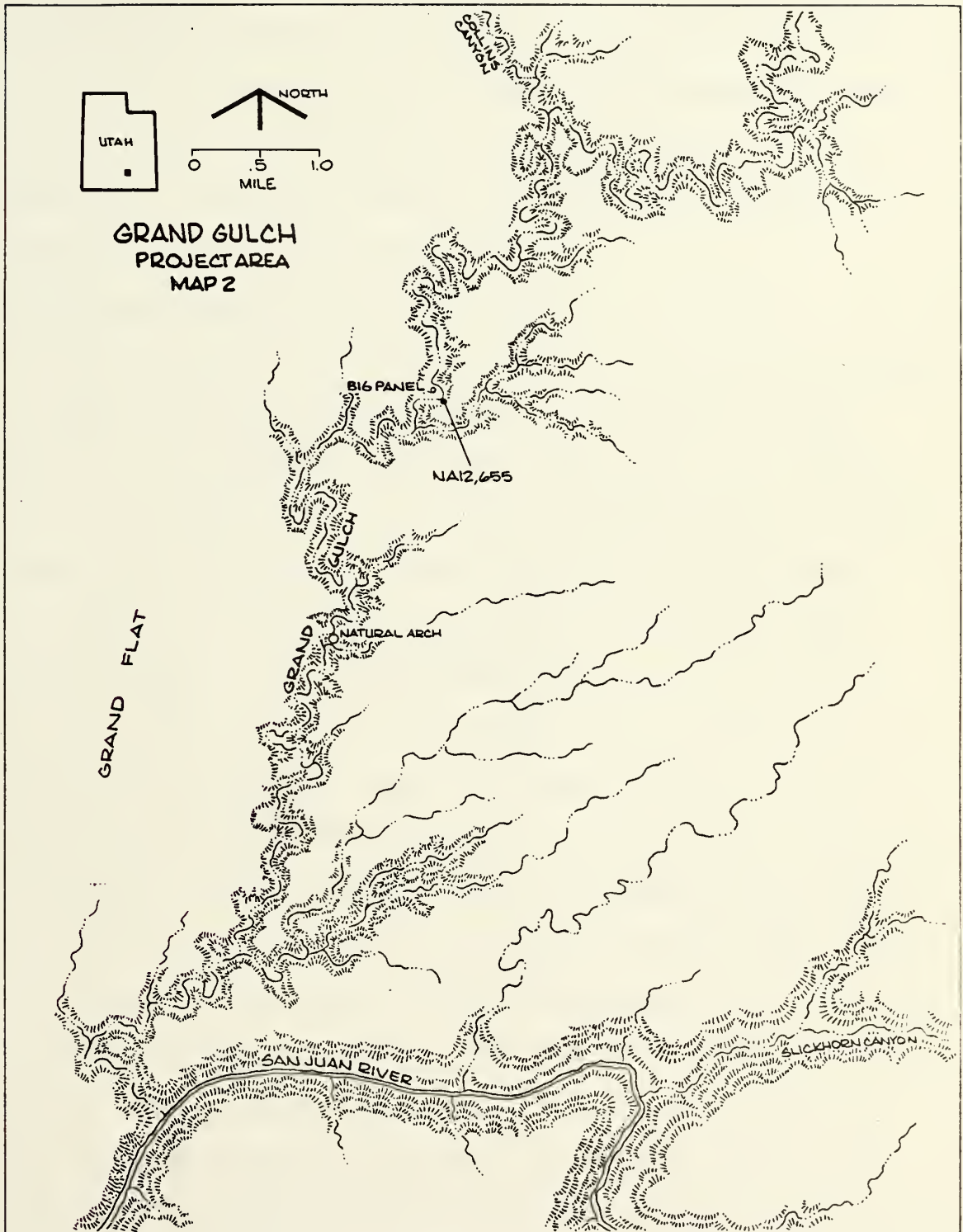


**GRAND GULCH
PROJECT AREA
MAP I**





**GRAND GULCH
PROJECT AREA
MAP 2**



At the end of each site description are brief comments on the research potential remaining at each site. In addition to what is discussed here, there is of course the great amount of potential information available through detailed analysis and integrative study of the collections made during this project from these sites.

NA12,641 (GG 73-200; 42Sa 3710)

Site NA12,641 is a southeast facing burial cave located in a deep shelter on the northwest side of Bullet Canyon. The site area, which is 120 meters long, lies atop a high talus of boulders. As a whole, it is characterized by areas of loose soil interspersed with large and small boulders. In the central and extreme southern portions of the site boulders account for a considerable percentage of the surface area. The platform on which the site is located is not particularly wide, even though the larger shelter itself is rather deep. The southern portion of the site is as wide as the platform, which generally does not exceed six meters in width. The northern portion of the site is only eight meters wide, in spite of the fact that here the site area is fronted by a knoll at its same level. This knoll is located outside the drip line, a natural feature of the shelter which probably served as the outer boundary of the site during prehistoric times. The likelihood that this limitation was in effect is increased by the observation that this shelter

served primarily for the burial of the dead, an activity which seems to have centered on caves identified as a space apart. The drip line, indicating as it does a point beyond which water does not penetrate, serves to delineate that space. In addition, the combination of large boulders under which to place burials and loose fill within which to place them occurs primarily under the overhang, inside the drip line.

Work was done on NA12,641 on June 5, 1974. The site was mapped with the aid of three base lines, this number made necessary by the length and curvature of the shelter. Material was collected in two meter square units, with individual looters' pits serving as additional provenience units. All human bone, lithic and ceramic material, and artifactual and non-artifactual perishables which were seen on the surface were collected. The human bone from the site represents at least 42 individuals; all probably were exhumed by the activities of the early relic collectors or later pot hunters. Several skeletons ranged from almost wholly to partially articulated. Lithic material collected includes a hammerstone, a chopper, and fewer than 20 flakes. Ground stone is limited to a fragmentary abrader and two fragmentary manos. The five sherds collected represent several analytic categories: Tusayan Corrugated; Mesa Verde Corrugated, Mesa Verde variety; and unidentifiable Mesa Verde

White Ware. Artifactual perishable material was abundant. Included are a bone awl, pieces of cord, basketry fragments, and pieces of leather. Of particular interest among the categories of non-artifactual perishables are corn cobs, more than 50 of which were collected, pieces of squash rind, and human feces.

Four types of archaeological features were recorded at the site. First, a low section of dry wall unmortared masonry is located near the center of the site. This wall extends for about a meter out from the back of the shelter. For about half of its length it is built atop a low boulder. Second, a number of "axe sharpening grooves" were found on boulders around the site. Third, pictographs were noted on the rear wall of the shelter. Of particular interest is a group near the extreme southern end of the site. A human figure depicted in curvilinear fashion is flanked by what appear to be spear throwers, or atlatls. There are 12 to the left of the figure and seven to the right, with an additional 11 appearing nearby. Finally, a probable hardpan cist was recorded near the back of the shelter.

The large quantity of human bone at NA12,641, along with the lack of structures and general scarcity of lithic tools and sherds suggests that the burial of the dead was the primary activity performed at this site in prehistoric times. Burial caves of this kind were often used by Anasazi

of the Basketmaker II period. However, the small amount of ceramic material encountered indicates that the shelter was used to at least a slight extent by people of the more recent Pueblo II and III periods, although not necessarily as a burial area. In addition to the burial of the dead, the shelter could have been used by people of either the Basketmaker II or Pueblo II and III periods for a number of other activities. The chipped stone suggests that a small amount of tool use or manufacture was performed at the site, while the manos suggest food preparation as a possible activity. Pottery could have been used for both the storage and preparation of food and the corn cobs could have been stored in the cist. However, many if not all of these objects could as well have been interred with the burials as grave goods, obviating the need for explanatory models incorporating a number of activities. Only with further research could it be determined what activities were very likely performed by people at various periods here.

There is abundant evidence to show that many people have visited the site during the last 100 years. Particularly striking are the looters' pits, 155 of which, along with associated backdirt piles, were recorded. These pits, scattered over the entire site area, are undoubtedly the source of most of the material collected at the site. Also of interest are the inscriptions on the wall of the shelter

where one can read the names "H.R. Ric[k?]ey", "J.W. Billings", "Billings", and "Wetherill." Also present is an interesting Spanish inscription which reads, in as far as it can be deciphered, "Una puta d? C? todos los q? ? con muertos."

Although this site has been very badly torn up by unscientific digging, and much valuable data lost, it does still have some possibilities for scientific research. The irregular site surface and numerous boulders, together with the evidently unsystematic character of the digging, make it possible that some pockets of undisturbed fill remain in cracks or under boulder, or under early backdirt piles. The most obvious problem to pursue here would be to try to salvage additional data on the Basketmaker II burials. Large scale systematic excavation would probably recover additional fragmentary skeletal material, and might provide better documentation of the dates of the burials. There are likely to be at least a few undisturbed burials yet to be found; if so, they might have cultural associations that would help archaeologists to reconstruct the associations of the exhumed and scattered interments. The interesting possible cremation has already been referred to.

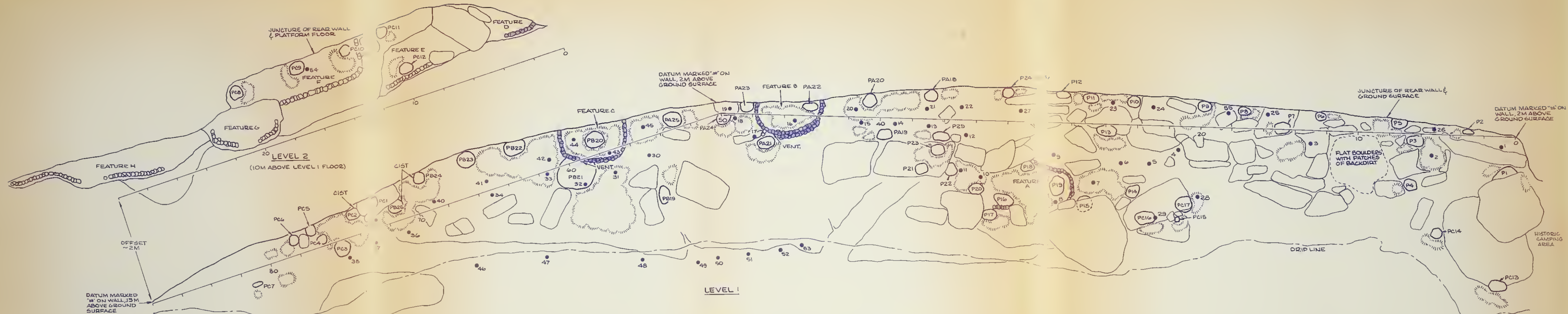
In summary, this would have been a most important site if it had been properly excavated in the first place. Few sites in the southwest have had the potential for yielding

such a large number of Basketmaker burials (Lipe, personal communication). The potential for both archaeological and physical anthropological studies would have been very great. Most of this potential has been destroyed, but it might still be possible to salvage a residue of significant information if careful and extensive excavations were carried out. Such a project would enhance the scientific value of the collections made by the present project in 1974, and possibly, the Wetherill collections.

Such a project should not be undertaken lightly. It would be appropriate to dig this site in conjunction with a comprehensive program of research, on the basis of very well formulated research questions and methodologies, and with ample funding. The decision should also take into account the impact of the excavation on the remaining reservoir of sites of this type in the area. If there are better preserved sites of this type, this one might be a good one to excavate just because it is generally better to make one's mistakes on a seriously damaged site than on a pristine area.

NA12,648 (CM-1; 42 Sa 3711)

The "Green Mask Site", NA12,648, is located on the north side of Sheiks Canyon, several hundred yards from where that canyon joins Grand Gulch. The "Green Mask" is in a southeast facing shelter which is neither particularly



- LEGEND**
- P2 - LOOTER'S PIT
 - PB - PIT BACKDIRT
 - - DRY WALL MASONRY
 - - MORTARED MASONRY
 - - ROCK OR BOULDER
 - - ARTIFACT COLLECTION UNIT



deep nor long. The distance between the rear of the shelter and the drip line generally does not exceed eight meters. The drip line, in turn, is only two to eight meters from the edge of Sheiks wash. The portion of the shelter occupied by the site is about 100 meters long; the unutilized portion of the shelter accounts for about another 20 meters. The site itself is located on two distinct levels within the shelter.

The main site area (level 1) is located on an irregular platform varying from five to 10 meters in height above the bottom of the wash. Most of the site area is dominated by boulders, both large and small, which have fallen from the overhang above. Back toward the cliff in the northeastern half of the site the boulders are piled particularly high, while toward the front they are piled one atop the other so as to produce two small, well sheltered "caves." The southwestern half of the site is more open; boulders are less abundant and there are more areas of loose fill.

The secondary site area (level 2) is on an irregular ledge, or series of ledges, between five and 10 meters above the southwestern half of the main site area. The extreme southwestern portion of this ledge is open, while the opposite end is well sheltered, partly by a deep, shallow overhang approaching the dimensions of a true cave. This overhang and the ledge itself are the result of the erosion

of a relatively thin, sandstone/shale member which contrasts with the massive, crossbedded sandstone units lying above and below.

In addition to a few "axe grinding" grooves, there are two types of features at the "Green Mask." These are architectural remains and pictographs. Except for Feature A, the architectural features in the main site area are situated with their "backs" to the cliff wall. The exceptional feature (A) is a masonry structure partially enclosing a space contiguous with one of the small boulder "caves" described above. The function of Feature A is unknown, though it may have served for habitation.

For the purpose of description, the remaining architectural features in the main site area can be divided into three groups. The first group includes the remains of four small unlined cists in the southwestern end of the site, one of which extends well under a small boulder. These structures were undoubtedly used for storage.

The second group of architectural features includes two "shadow structures", the only remaining evidence of which are mud and soot stains on the back wall of the shelter. One of these, to the northeast of Feature B, consists of two adjacent soot stains, the larger being more than two meters wide and about 3/4 of a meter in height, and the smaller being one meter wide and 1/4 of a meter in height. Between

these two soot-blackened areas and on the outside edge of each are mud stains which show where walls and roofs once abutted the back of the shelter. These stains and outlines indicate the former presence of two contiguous rooms, used for habitation. A second such "structure" lies between Features B and C, and consists of the mud outlines of two walls and the roof between. Because there is no soot on the shelter wall, it may be inferred that this structure was used for storage.

The third group of architectural features is made up of two masonry structures, Features B and C. Both consist of roughly semicircular walls set against the cliff. Feature C, measuring four meters wide by two meters across, has a ventilator and may be a kiva. The portion of the cliff contained by the walls of the structure is soot-blackened, with four essentially identical circular designs superimposed on the soot. These designs are low-relief spirals in mud and are lined up horizontally across the soot-blackened portion of the cliff. Wetherill (1896-7) was of the opinion that these were recent because of their fresh appearance. However, they still look fresh 80 years after his observation of them. Mud pictographs are not uncommon in Grand Gulch, and most if not all of these appear to be aboriginal (Lipe, personal communication). So it is likely that these spirals are in fact prehistoric.

The second masonry structure, Feature B, is slightly less than four meters wide and two meters across. It may also be a kiva. The structural integrity of both of these features, especially Feature A, is threatened by deep looters' pits adjacent to their walls.

In the secondary site area (level 2) a series of masonry walls are divided into five features, D through H. This portion of the site can be approached by an easy climb from a point to the west of the main site area. The first structure one encounters is an irregular dry laid masonry wall, Feature H. As is the case with all of the structures on the upper level, one is immediately struck by the defensive character of this wall. Feature F is a possible exception, being set back further under a low overhang and having the appearance of an enclosed space with a door, roof, and floor, and having the appearance of a room. Pot hunters also seem to have appreciated the possibility that Feature F served a function other than defense, for three of their pits were identified in the fill within it. All of the walls in the upper portion of the site are dry laid, except for Feature E, which is mortared.

The pictographs at the "Green Mask" are its most outstanding feature. Little work has been done on graphic art in this area of a type to aid in a brief description such as this one. Suffice it to say that the pictographs at

this site, as well as the pictographs and petroglyphs at other sites in the canyon, constitute a valuable resource worth protecting, so that it will be available in the future for both research and esthetic appreciation.

The pictographs on the shelter wall can be divided into two sets; a higher and a lower. Many of the upper drawings are more than five meters above the level of the highest boulders on the floor of the shelter. Their height suggests that they were painted with the use of ladders, or that they were painted long ago when the top of the talus slope was higher and closer to the back of the shelter or, most likely, when a ledge existed on the shelter wall from which they could have been painted. Most of the upper drawings represent geometric designs, particularly combinations of straight and curved lines. Included are zig-zags and a design resembling a candelabra. A major exception is the "Green Mask", after which the site was named. This picture, located a good five meters above the nearest boulder, shows a face, or mask, consisting of vertical stripes, alternating yellow and green.

The lower pictographs include many depictions of human forms in both rectilinear and curvilinear styles. Most striking are a set of human torsos in red, shaped like inverted triangles. A number of these are without heads, though examination of color slides suggests that in some

cases this portion of the figure was done in a less permanent paint, revealed today by only the faintest of shadows. Other human forms are done in a white, chalky paint in a manner suggesting a depiction of skeletons. All of these human forms, both the red rectilinear and the white curvilinear, measure more than .5 meters tall.

Work was done on the "Green Mask" on June 14, 1974. Two base lines were needed to map the main, lower portion of the site, and one of these also served for the mapping of the secondary, upper portion. All lithic, ground stone, and ceramic material, as well as perishable material, was collected. Collection was done in two meter square units. Some of this material, especially non-perishable artifacts, was concentrated in the area of Feature A. It was arranged in such a way as to suggest that recent visitors to the site had placed it there. The collected material lends support to the idea outlined above that the architectural features were used for both storage and habitation. The ground stone material, including five manos, suggests that food was prepared at the site. Much of the pottery would have been used for the same purpose, with the corrugated pieces also serving as storage vessels. Decorated pottery is more likely to have been used for serving food. Among the perishable materials, the corn cobs provide the best evidence of food storage. Other perishables collected at the site, including

basketry fragments, cord, and knotted yucca fiber, might be indicative of storage or habitation activities. In a similar vein, the lithic material, particularly the biface, the cores, and the flakes, are related to the manufacture and use of stone tools, activities which may well have been performed at a habitation location.

The ceramic material collected at the "Green Mask" indicates the presence of two components at the site. These components, however, may simply indicate a general change in pottery making during a continuous occupation of the site. That is, the components may be constructs of analysis. Indicative of late Pueblo II early Pueblo III times are sherds of Sosi Black-on-White and Mancos Black-on-White. Other sherds, such as those of unidentified Tusayan white ware and Tusayan Corrugated, commonly date from both the Pueblo II and Pueblo III periods but are most frequently found in the Grand Gulch area in contexts which are suggestive of the late Pueblo II early Pueblo III period. All of these types, except Mancos Black-on-White, are in the Kayenta ceramic tradition. Most of the full Pueblo III material is of Mesa Verde Black-on-White and of unidentified Mesa Verde White ware (with sherd temper). Finally, there are a large number of corrugated sherds with "quartz plus other" temper. This type occurs frequently in sites in the Grand Gulch area and seems to be most strongly associated

with Pueblo III artifact assemblages.

The 52 looters' pits identified during the present study attest to the presence of people at this site during the last century. These pits are spread over the entire site, even including the upper site area, as was mentioned previously. All of the features in the lower site area have been disturbed. Additional, more specific information concerning recent activity at the site is provided by the inscriptions on the back wall of the shelter and on boulders. These include: "J. L. Ethridge Jan. (?) 1894" on the wall, "J.W. 1920 1918 (?)" on the ground portion of a boulder, and "GG-69 RS" on a boulder.

Observations by W.D. Lipe, Carl Mahon, Pete Steele, and the Grand Gulch ranger team indicate that this site has been dug in both intensively and extensively within the last two years. This, coupled with the considerable work done by McLoyd, Graham, and Wetherill, suggests that most of the deposits at this site have been disturbed.

This disturbance severely limits the research potential of excavation at the site, which must once have had great research potential. Furthermore, the site is obviously multi-component, containing definite evidence of Pueblo II and Pueblo III occupation and probable evidence (provided by the pictographs and by Wetherill's accounts of burial finds) of Basketmaker II and possibly earlier occupation. The

extremely irregular floor of the site, with obviously "pocketed" fill further complicates the picture.

Excavations at this site would be in the nature of a last-ditch salvage effort. The site would have to be thoroughly and systematically excavated, 1) to recover more out-of-context, disturbed materials of the sort collected from the surface (that would, nonetheless, help characterize the general picture of occupation at the site, and 2) to locate possible undisturbed burials and patches of undisturbed fill. This latter objective might no longer be achievable.

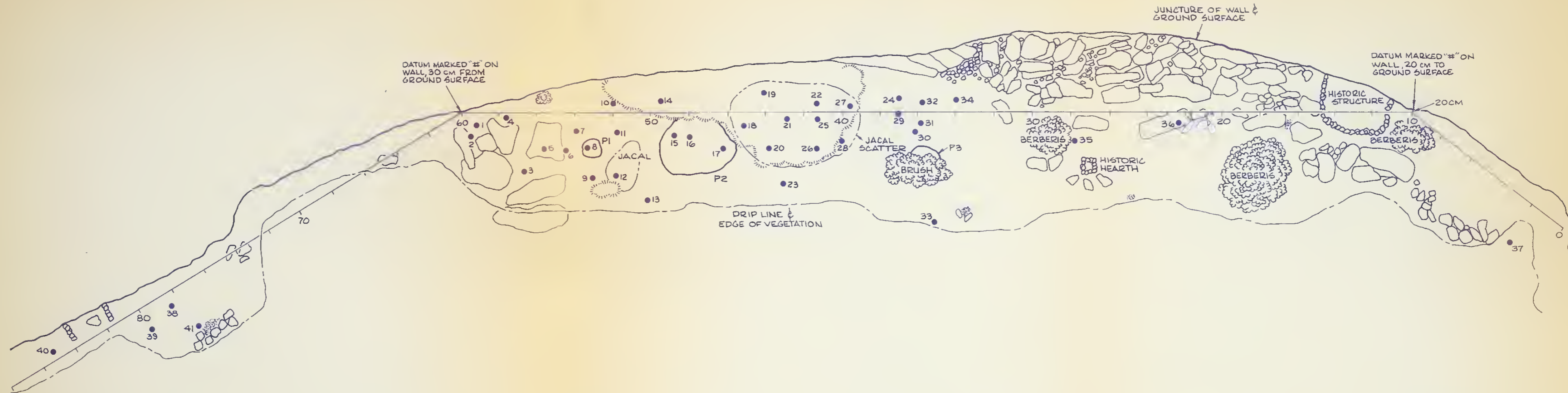
Despite the difficulties presented by this complex, terribly vandalized site excavations here might be worthwhile for the following reasons: 1) Wetherill and McLoyd and Graham clearly took a number of burials from the site. Some of Wetherill's finds were quite elaborate, are in a museum, and can be associated with the site. Future "detective" methods, such as chemical "fingerprinting" of dirt adhering to museum specimens, may make it possible to assign more of the early collections to this site. Salvage excavation would place these early collections in better context. 2) The upper level pictographs at the site are very distinctive and may be of an archaic or pre-Basket-maker style. In the opinion of W.D. Lipe, they are the most probable archaic pictographs he has yet observed in

the canyon. If they indeed were painted by artisans standing on a ledge now fallen, archaic occupational evidence may exist beneath the rock fall. Or patches of archaic midden may, by some miracle of chance preservation, remain elsewhere in the site. Such a find of archaic occupational evidence would be very significant because very little is known of the archaic occupation of the western Four Corners area, and most of what is known is from open sites, where perishables are not preserved.

Fortunately, the pictographs at the "Green Mask" site are very well preserved. These alone could be the subject of a significant study, especially as part of a larger study of Grand Gulch rock art. Lipe has a full set of photographs of the pictographs, and one of his students sketched them in 1969. More accurate sketches need to be made, however. Since a pictograph study would not be destructive, it could be done any time. Excavations, however, should be initiated only after very thorough consideration of their impact on the remaining archaeological resource in the Gulch.

NA12,649 (GG69-32; 42 S2 3712)

Site NA12,649 is located in a south to southeast facing shelter overlooking Grand Gulch. This orientation is particularly favorable in the winter, when it receives the early morning sunlight. However, one cannot ignore the subjective observation that most of the suitable shelters in this portion



LEGEND

- P2 - LOOTER'S PIT
- PIT BACKDIRT
- DRY WALL MASONRY
- ASH
- ROCK OR BOULDER
- 15 - ARTIFACT COLLECTION UNIT

0 2 4
METERS

NORTH

of the canyon are located on the north or west side of the canyon.

The shelter in which NA12,649 is situated has a floor space 90 meters long with an average width over most of this length of between eight and 10 meters. This width is measured from the back of the shelter to the drip line. In the extreme western portion of the shelter the width is considerably less, measuring only two to four meters. The floor of the shelter is rather level, and most of it is free of roof fall. However, there are some boulders in the western portion of the site, as well as against the back wall of the eastern portion. Otherwise, the floor of the shelter consists of a loose sandy fill which appears to overlie a thick alluvial terrace.

Today, the drip line serves as the effective forward boundary of the site area, for it corresponds almost exactly to the edge of a dense thicket fronting the site. This thicket, in turn, is not particularly wide. That is, in the eastern portion of the site the ground surface falls away to form a steep, wooded slope. In the western portion of the site the thicket ends abruptly at the edge of a deep cut in the alluvial terrace. At the bottom of this cut, at least five meters below, is the wash channel of Grand Gulch.

Except for the numerous pictographs, little evidence remains of the manner in which prehistoric peoples made use

of this shelter. The pictographs are abundant and include numerous depictions of more or less stylized humans, in addition to a few of animals and some geometric designs. The only other evidence takes the form of a scatter of jacal, a possible pit house depression (Pit 3), and a minimal quantity of artifactual material. The scatter of jacal is in the west central portion of the site and occurs mainly on a sandy rise toward the back of the shelter. It is impossible to determine the type of structure represented by this material, or even its exact location.

Work was done on NA12,649 on June 10, 1974. The site was mapped using a 50 meter baseline, and a surface collection of all artifacts and non-artifactual perishables was made using two meter square units. According to Richard Wetherill (1896-7), who dug at this site, there was a "kitchen midden" near the front of the site in the vicinity of the jacal scatter and possible pit house depression identified by the present study. However, no such midden was observed during work performed by this present study. In fact, only a very small quantity of material was collected from the site as a whole. The shelter appears to be a favored camping spot for hikers, and it is possible that a considerable quantity of material has been removed from the site in the recent past. Alternatively, dust from the roof and blown in from outside the cave might possibly

mask a midden area, although the survey team judged this unlikely.

Because the material was so sparse, the site was completely collected. This included all chipped stone, ground stone, ceramics, and perishable material. Chipped stone was limited to two choppers, one core, and 33 flakes.

Though far from abundant, this material does suggest that chipped stone tools were manufactured, modified, or used at the site. Ground stone is even less common, being limited to two abraders, one mano, and one object of ambiguous function. Perishables were hardly more abundant, including only a few pieces of bone, some pieces of cord, and a few miscellaneous objects of other materials.

Although only 32 sherds were collected at the site, they represent types which throw an interesting light on the periods of the site's use. Nine Lino Gray and six Chapin Gray sherds indicate that the site was used during Basketmaker III times.

These Basketmaker sherds were distributed fairly evenly over the area of the site in what appears to be an undisturbed manner. On the other hand, the Pueblo period ceramics were located in small groups on rocks in such a way as to indicate that they had been disturbed and possibly brought in to the site by recent visitors. A Pueblo period component may not actually be present at this site.

This site is exceptional in the sense that looters' pits account for a fairly minor portion of the evidence of recent human activity at the site. Only three pits were identified, one of these probably having been dug by Wetherill. More striking is the evidence of small scale construction of features in recent times. For instance, there is a dry wall structure standing to a height of less than a meter near the eastern end of the site. The conclusion that this structure is historic is based primarily on the fact that it does not appear on Wetherill's rather detailed sketch done in 1897. Also noted was an historic hearth with modern trash in its ashy fill. Most of this trash was carried out of the canyon by the 1974 survey team and the hearth dismantled. Additional evidence of recent activity at the site takes the form of inscriptions on the back wall of the shelter. Of particular interest are "J. Wetherill 1920", "No. 73 AMNH 1920 N.C.N." and "B.T.B.H. 1920". These inscriptions clearly date from Nelson's 1920 survey. Adjacent to the "B.T.B.H." inscription is "Andy De Laney," which probably records a later visit.

Site NA12,649 does not appear to offer much possibility for productive research excavation. The surface evidence may be misleading, however. Certainly, if the "possible pithouse depression" did overlie a Basketmaker III house, this would be a very significant find. Before any large

scale excavation were undertaken, the site should be thoroughly tested by trenching or pitting or both and an excavation strategy designed on the basis of the findings of this testing program.

Based on present information, this site would not seem to be a very good prospect for excavation.

NA12,650 (GG69-33; 42 Sa 3713)

Site NA12,650 is situated under a large overhang on the west side of Grand Gulch, around a corner and just north of the "Turkey Pen" site (NA12,651). The canyon at this point is some 125 meters deep, and the overhang, though high, accounts for less than the bottom 50 meters or so of the canyon wall. The site lies on an irregular platform of roof fill and fill atop a rocky talus. Except for some trees and brush toward its bottom, this talus is devoid of vegetation. Beyond the trees and adjacent to the wash channel of Grand Gulch is a small sage flat.

The site area is approximately 90 meters long and reaches a maximum width of 20 meters, including the talus slope. The northern 1/2 of the site is covered with roof fall consisting of large spalls of rock. These large rocks are arranged much like the panes of a stained glass window, with deep narrow cracks lying between individual spalls. Because of this arrangement, it seems likely that most of the rock came down in just one or a few episodes of roof

collapse. In the notes for his 1896-97 expedition, Richard Wetherill suggests that these boulders fell after the cave was occupied and that more cultural material might be found beneath them. Though he may be correct, it would be a difficult proposition to test and could involve great expense and risk. Artifacts are sparse in this portion of the site and most of those found may have been carried there by rodents. Furthermore there are pictographs on the cave wall that almost certainly were made by persons standing atop the rock fall. This indicates that at least part of the occupation (and in the author's opinion, all of it) post-dated the rock fall.

As one goes south, boulders account for less and less of the surface area of the site. The corresponding portion of the talus has fewer and fewer boulders so that in the southern 1/4 of the site the slope consists primarily of loose fill. This fill, as well as that in the more level portion of the site area, is sandy and deep. In the southern 1/2 of the site the floor of loose fill meets the shelter roof/wall at an acute angle. The resulting low ceiling reduces the effective area of the site, at least for some activities.

Site NA12,650 was collected on June 10, 1974. Two baseline segments were used to map the site. Collection was made in two meter square units. All sherds, lithics,

human bones, and perishable materials, both non-artifactual and artifactual, were collected.

During prehistoric times this shelter served primarily as a burial cave. The human bones collected from across the site represent at least 20 individuals. The artifacts at the site, as well as the non-artifactual perishables, may have accompanied the burials or may reflect the performance of other activities aside from the burial of the dead. It seems very likely that many of the perishable artifacts were interred with the burials as grave goods. Included in this category of objects are basketry fragments, pieces of Z- and S-twist cord, worked wood and shell artifacts, leather, fabric, and pierced corn cobs.

Non-artifactual perishables collected at the site include almost 50 corn cobs and about a dozen pieces of squash rind. These foodstuffs may have been placed with the burials or they may have been stored in the shelter. According to Richard Wetherill there were in 1897 a number of "pot holes", or hardpan cists, in the southern portion of the site (Wetherill 1896-7). No such features were noted during the present study. Thus, storage is an additional possible site function.

The manufacture of stone tools is yet another activity performed at NA12,650. A few waste flakes were collected from the site, as well as a core. In addition, ground areas

on boulders, sometimes suggested as being axe-sharpening areas, were noted. A final "function" of the site was to provide a sheltered spot for the placement of petroglyphs, a few of which were noted just north of the center of the cave. These pictures may or may not be related to the burials. From the artifacts and their distribution and from information gathered at other sites in the area it is inferred that the shelter served primarily as a burial cave for Anasazi of the Basketmaker II period. These people may have also utilized this site for some of the other functions not related to burial which were mentioned above. There is also evidence in the form of pottery for some use of this cave in later times. The few sherds collected represent the Pueblo III and possibly the Pueblo II periods. The one unfired sherd may be from the Basketmaker II period.

There is abundant evidence of comparatively recent human modification of the site. An historic hearth and a cache of provisions were recorded, as were the initials "J.W.", apparently standing for John Wetherill, engraved on a boulder. A total of 58 looters' pits were recorded in the site area, the majority of these being in its southern portion. A particularly disturbed area is at the extreme southern end of the site. Back dirt and eight looters' pits cover an area measuring approximately eight by six meters. Looting is not the only human activity contributing to the

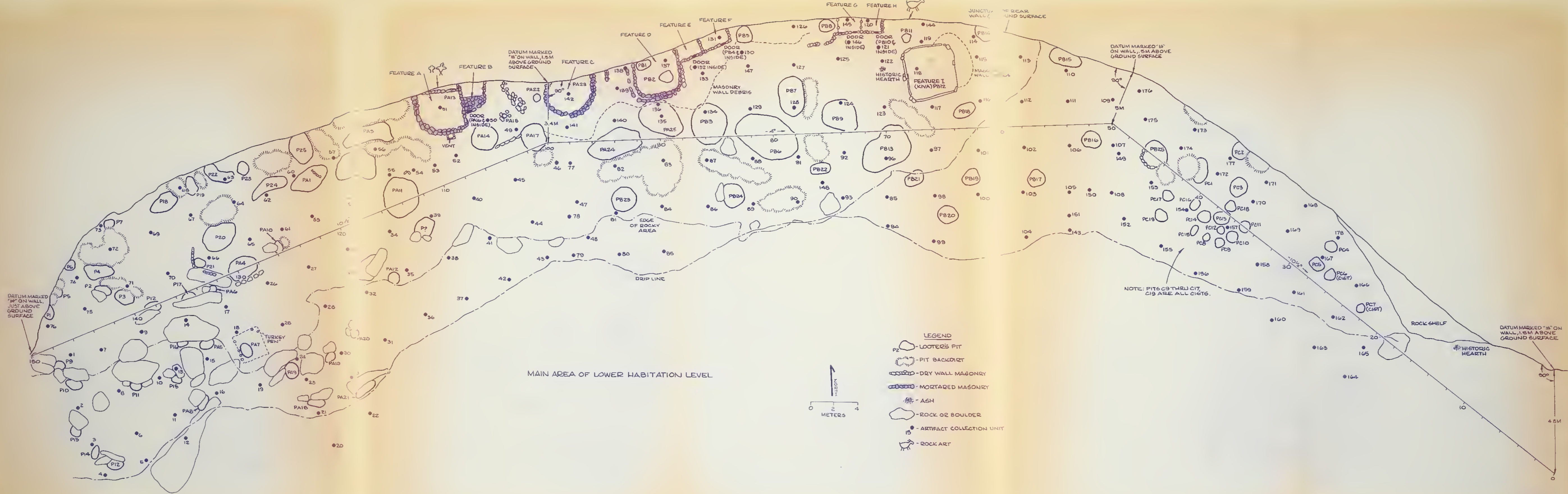
current deterioration of the site. Foot traffic is heavy across the slope in front of the site where the easiest route of access is located. As a result, the erosion of the loose fill on this slope is being accelerated. Artifacts and non-artifactual material were collected on this slope, and it is likely that many of the objects recovered had been exposed and carried downhill in the course of this erosion.

The research possibilities remaining at this site are roughly analogous to those at NA12,641. It is basically a Basketmaker II burial cave with evidence of very light use in later times. It yielded burials and other materials to the early collectors that are now in museum collections in the East. Excavation at this site might provide evidence that would help place these early collections in context, and might by chance recover new data in possible undisturbed fill. The nature of the fill observed and of the artifacts collected suggest that the site was little used for habitation, so there is little chance of finding undisturbed patches of midden. A few burials might still remain undisturbed under or between boulders or in deep pits not reached by the diggers who have churned the site so thoroughly. Such finds appear even less likely than at NA12,641, because of the relatively small area from which most of the material seems to have come, and because of the very thorough working over of these areas by previous diggers. Radical, full-scale

excavation, removing all potentially cultural fill would be the only alternative. Because of the problems cited above, the more conservative and favored technique of partial excavation based on a sampling design could not be used to good effect. The damage visited on the site by unscientific diggers has reduced the research options to one of salvage.

NA12,651 (GG 69-34; 42 Sa 3714)

The "Turkey Pen" site, NA12,651, is located under a large overhang on the north side of Grand Gulch, about a mile downstream from the point at which that drainage is joined by Kane Gulch. The "Turkey Pen" site is located on two levels within a deep shelter curving from a southwestern exposure at the eastern end to a southeastern exposure at the western end. The main site area is located on a platform which extends over the eastern half of the shelter and which slopes from a high point at its western end exceeding 20 meters above the level of the wash to a low point at its eastern end where it is at the same level as the adjacent alluvial terrace, or less than five meters above the wash. This platform is 150 meters long and exceeds 15 meters in width over much of that length. It is fronted by a talus of boulders, which lies adjacent to the cliff in the western portion of the site. In the eastern portion, on the other hand, the talus is located well away



MAIN AREA OF LOWER HABITATION LEVEL

LEGEND

- LOOTER'S PIT
- PIT BACKFILL
- DRY WALL MASONRY
- MORTARED MASONRY
- ASH
- ROCK OR BOULDER
- ARTIFACT COLLECTION UNIT
- ROCK ART

from the cliff, leaving room for a platform of loose, sandy fill in between.

The upper portion of the site is approached by climbing along the talus toward the western end of the main site area and then up a short, irregular section of the cliff backing the shelter. There, one encounters a narrow ledge, no more than three meters wide, extending eastward from this point to the end of the shelter. Most of this ledge consists of exposed bedrock, though there is some loose fill at the point of ascension as well as in association with the structures located along the ledge at a point above the central portion of the main, lower site area. This upper platform is 150 meters long and averages about 2 meters in width over much of that length.

One manner in which a description of the architectural features at the site can be organized is in terms of the functions which they probably, or possibly, filled for the prehistoric inhabitants. Four functions which are often included in discussions of Pueblo sites are storage, habitation, ceremonial, and defense. At best, a description of the surficial characteristics of a structure, without accompanying excavation, can permit the suggestion of primary functions, while not excluding the possibility of secondary ones.

Keeping this reservation in mind, one can begin with

those structures having the most obvious function. These are subsurface cists, a number of which are located in the extreme eastern portion of the site, away from the masonry structures. These cists, which are unlined, vary in diameter from about .3 to 1.1 meters. Ten of them are concentrated in an area measuring six by five meters. These structures were definitely used for storage, and they may have served this function prior to the construction of the masonry structures located upslope.

Several of the masonry structures were probably used for storage. Included in this category are Features E, F, G, and H. These structures are assumed to have been used for storage because of their comparatively small size and lack of soot blackening within. Mud outlines on the cave wall indicate the former presence of other structures which may also have been used for storage.

Probable habitation structures are of masonry or jacal, or are "shadow structures" whose only remains are mud and soot stains on the back wall of the shelter. Masonry structures to be included in this category are Features A, B, C, and D. All are accompanied by soot stains, and only feature B measures less than four by four meters. The presence of a double wall, ventilator, and possible deflector suggests that Feature D may, in fact, be a kiva. The "Turkey Pen", a partially intact jacal structure standing away from

the cliff and not far from the talus slope fronting the site, may have been used for habitation or for some more particular activity or purpose. Soot-stained areas on the cliff, which are numerous, were not assigned feature designations. The structures which apparently once stood in fronts of and beneath these stains may have been constructed of masonry or jacal, or some combinations of these techniques. It seems likely that when these structures fell into disuse, the materials were removed and incorporated in new structures.

Kivas are structures usually characterized by a number of quite specific traits and are assumed on the basis of ethnographic analogy to have been used for the performance of ceremonial activities, as well as for some activities of a more mundane nature. Two kivas have been positively identified at the "Turkey Pen". The first, Feature I, is a typical subterranean kiva with six roof-supporting pilasters, and at least a partially cribbed roof, inferred roof entry, and a southern recess. The other kiva is located on the upper ledge and has a number of features generally ascribed to so-called "cliff kivas", including double coursed masonry walls, a south facing ventilator opening, and roof entry.

A masonry wall running for a number of meters along the upper ledge where one ascends from below is believed to have

served a defensive function. Quite clearly, this wall served to control access to the upper ledge.

NA12,651 was recorded on June 10 and 11, 1974. The eastern three quarters of the main site area was mapped with the aid of three 50 meter baseline segments. Collection of all sherds, lithics, and perishable materials was performed using four meter square provenience units tied into these baselines. Metates and metate fragments, large manos, and large cores were not collected. Collection only extended from the back of the shelter to the upper edge of the talus slope. This area seemed the most vulnerable to looting, because of the deep midden, and it exhibited a considerable quantity of attractive nuisances. Because of time limitations and because of their comparative lack of vulnerability, the areas of trash on and below the talus slope, the extreme western portion of the main site area, and the upper site area were neither mapped nor collected. The western portion of the main site level and the upper site level have since been mapped and collected by the 1974 Cedar Mesa Project under the direction of W. D. Lipe.

An excellent collection of non-artifactual perishable food remains was made, including over 2900 corn cobs and more than 240 squash gourd fragments. Also collected was a wad of cotton, human and animal feces, and a number of feathers and other items. Lithic material collected

included over 1500 flakes as well as numerous cores, choppers, and scrapers indicating tool manufacture and use at the site. Over 30 manos, as well as a number of miscellaneous ground stone pieces, are indicative of the preparation of food, probably corn and/or grasses, at the site.

Basketmaker II occupation of this site is strongly suggested by the cists in the eastern end of the site. The large ceramic collection indicates substantial occupation of the site during the Basketmaker III period and a heavy occupation during the Pueblo II and III periods. Like virtually every other site in the Cedar Mesa/Grand Gulch area, Pueblo I period ceramics are rare, although they can be found in abundance on sites to the northeast of Cedar Mesa in Comb Wash. In contrast to most other sites in the Grand Gulch area, Pueblo I ceramics have been noted at this site (Lipe, personal communication), although no sherds definitely assignable to this period were collected during this present project. Judging from the ceramics, occupation of NA12,651, during Pueblo II and III times was probably continuous, reaching a peak during the Pueblo III period. The Kayenta tradition ceramic presence seen in the late Pueblo II - early Pueblo III material is largely absent in the full Pueblo III material.

Historic activity at the site is evidenced by the 94 identified pits, many of which are the work of looters,

concentrated in the two meter deep midden in the main site area. Inscriptions noted on the shelter wall include "1959 Richard Peddersson", "1971 Don Ipson," "1971 Don Sorensen", "Draper", "No. 70 AMNH '20 NCN", "1892".

Despite the extension digging at this site, the pre-historic dry midden deposits are so extensive they have hardly been touched, at last relative to most sheltered sites in the Grand Gulch drainage. Furthermore, the "Turkey Pen" site has greater evidence of continuous occupation from Basketmaker II through PIII times than does any site yet observed in the Cedar Mesa - Grand Gulch region (W. D. Lipe, personal communication). In addition to the stratified midden, there are evidently numerous buried or partially buried architectural features.

For these reasons, this is a very important site with great research potential. It could be the focus of a major, multi-year research project, focussed on 1) unravelling the complex stratigraphic history of the site and translating this into culture history. 2) recovering perishable artifacts in precise stratigraphic context and, 3) recovering and analyzing the incredibly abundant non-artifactual organic materials, including vegetable and animal food remains, and pollen. Coupled with a detailed stratigraphic/cultural historical analysis, this study could give an unparalleled reconstruction of Anasazi subsistence and

environmental relationships, as well as leads to the character of the surrounding natural environment at various points in time. Furthermore, the midden deposits are deep and extensive enough so that sampling techniques could be used, and abundant midden left undisturbed for future researchers. This could indeed be a big site in research into Anasazi prehistory. Fortunately, the midden is unlikely to receive much damage by ordinary foot traffic. It is vulnerable to vandalism but it would take a really major pot-hunting effort to destroy it.

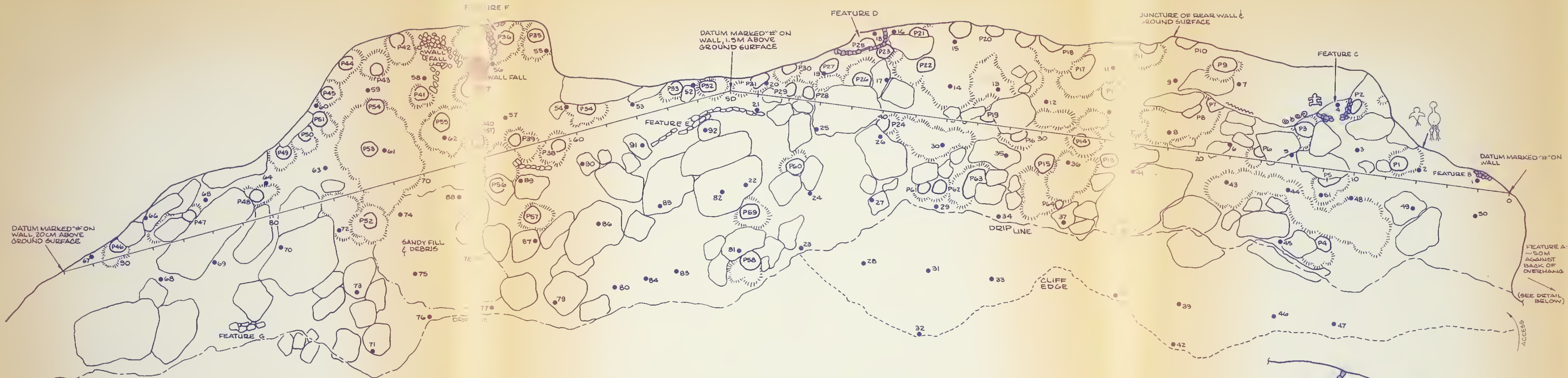
Although the large midden is the truly outstanding feature of this site, the architectural features also have research potential. Detailed mapping and recording of these architectural features was carried out by the Cedar Mesa Project in the fall of 1974, and a number of tree-ring cores were collected. These data are currently undergoing analysis. This architectural study could well be complemented by excavations which would clear the floors of these features. Most appear to have been dug in, and in many cases, the floors have probably been damaged, but much useful data could probably be recovered, nonetheless. Also, large-scale excavation project at this site would probably provide a number of examples of pithouses not now observable, and of architectural superposition and rebuilding.

NA12,652 (GG 69-90; 42 Sa 3715)

Site NA12,652 is located under a deep overhang, on the northwest side of Grand Gulch, several hundred meters downstream from the point at which that drainage is joined by Sheiks Canyon. The "Green Mask" site (NA12,648) is situated nearby, several hundred meters up Sheiks Canyon.

Most of site NA12,652 is located in a shelter with an exposure ranging from due east at the extreme southwestern end of southeast at the northeastern end. The floor of the shelter is located high above the channel of the nearby wash. Access from the wash involves walking up onto a high alluvial terrace, followed by a short climb up some poles leaned against a low bedrock cliff. From the ledge topping this cliff one has direct access to the bottom of the slope which constitutes the forward portion of the site. Most of this slope is covered with boulders. The front edge of the site is formed by the low cliff mentioned above, which is between three and five meters high. The site area, extending in most places from the back of the shelter to the cliff below, is fairly wide. It measures at least 12 meters over most of the length of the site and exceeds 16 meters in one small area in the southwestern half. The shelter is moderately long, measuring just under 100 meters from end to end.

A secondary site area, Feature A, is located in the



DATUM MARKED "# ON WALL 20 CM ABOVE GROUND SURFACE

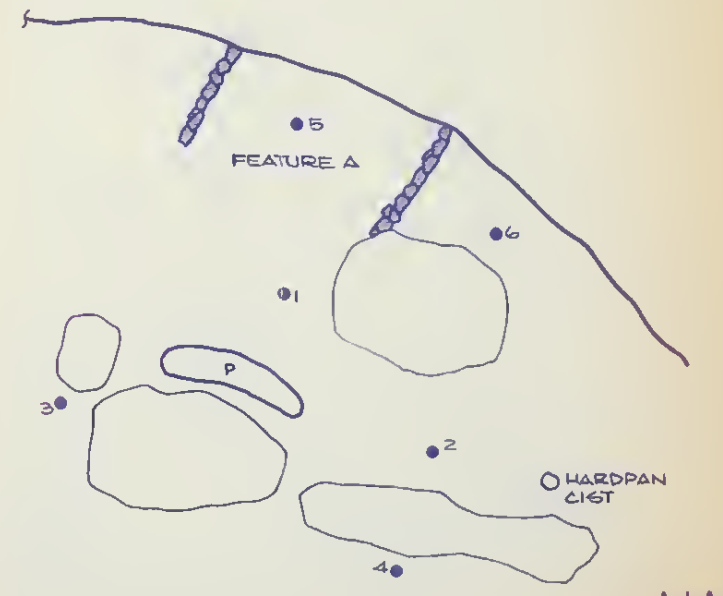
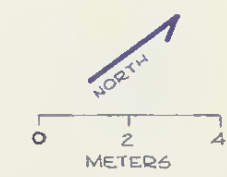
DATUM MARKED "# ON WALL 1.5 M ABOVE GROUND SURFACE

JUNCTURE OF REAR WALL & GROUND SURFACE

DATUM MARKED "# ON WALL

FEATURE A: ~50M AGAINST BACK OF OVERHANG (SEE DETAIL BELOW)

- LEGEND**
- P2 - LOOTER'S PIT
 - ☼ - PIT BACKDIRT
 - — — — — DRY WALL MASONRY
 - — — — — MORTARED MASONRY
 - — — — — ROCK OR BOULDER
 - - ARTIFACT COLLECTION UNIT
 - ⋈ - ROCK ART
 - ☼ - ASH



NAI2,652

same rincon, about 50 meters northeast of the main site area. Feature A has a southern exposure and is located under the same general overhang as the main site area, although not in the high, deep shelter area of the main site. It lies on a narrow bedrock ledge atop a low exposure of slickrock. This slickrock, in turn, extends down a few meters to the alluvial terrace mentioned previously.

Both subterranean and above ground architectural features were encountered at NA12,652. Pit 40, as well as a couple of other numbered pits in the vicinity, are large storage cists, measuring well over a meter in depth. These cists may have been used for burials following a period of storage use, perhaps during Basketmaker times. Above ground architecture is more varied. Two small masonry structures, Features B and C, are built so as to enclose small recesses in the shelter wall. Both were apparently used for storage. A habitation function is inferred for Features D and F, both of which are fairly large and have associated soot-blackening on the interior and adjacent portions of the shelter wall. Feature D is a semi-circular stone structure which has mortar on the interior, but none on the exterior. Feature F seems to consist of both masonry and dry wall construction. Two dry walls, Features E and G, are of unknown function, though the latter may have served

a defensive or lookout function. Finally, there is an isolated masonry structure, Feature A, which appears to have been roofless and has no associated soot blackening. There is an ashy midden in front of this structure, which may have served as a warm-weather generalized use area auxiliary to the main site.

Aside from architecture, the only prehistoric features are axe grooves and grinding areas, the midden, and petroglyphs and pictographs. The ground-into-stone "artifacts" are quite numerous and occur on boulders throughout the site area. The midden is most evident between pits 13 and 31. Though it has been severely potted, a small area of original midden floor remains near Feature D. Pictographs are not particularly numerous. Of most interest is a large, rather naturalistic representation of a deer in the vicinity of Feature A. A number of petroglyphs, mostly geometric designs, are located on the cliff wall just above pit 3.

On June 15, 1974, work was done at NA12,652. Mapping and collecting were in reference to two baseline segments. Collecting was in four meter square units on both sides of the baselines. Feature A was collected by dividing the small trash area into four collection units, with an additional two units in the area of the structure. All surface materials (human bone, chipped stone, ground stone,

artifactual and non-artifactual perishable material and ceramics) were collected, with the exception of two shallow egg-shaped basin metates. Human bone remains represent nine distinct individuals. The collection of more than 400 flakes and 16 cores suggest that the manufacture and modification of chipped stone tools were activities performed at the site. Manos were the most numerous ground stone artifacts at the site. Seventeen of these tools, a good indicator of food preparation, were collected and divided into a number of descriptive categories. Grinding stones, used for grinding activities which are difficult to specify, numbered more than half a dozen.

Perishable materials were quite abundant. Included in the artifactual category were a number of yucca knots and a few pieces of cordage. Non-artifactual materials were particularly abundant, especially remains of cultigens. More than 1800 corn cobs were collected, while the total number of corn remains, including stalks, husks, roots, and seeds, as well as cobs, exceeds 2000 specimens. Squash remains numbered 160 pieces.

Though far from abundant, ceramics collected at the site shed some light on the periods during which the site was occupied. The main site area has a possible Basket-maker III component, represented by a few body sherds of Lino and Chapin Gray, and a possible, sparse late Pueblo II

early Pueblo III component, represented by one sherd of Mancos Black-on-White and an unidentified Tsegi Orange Ware sherd. Far heavier is the representation of a Pueblo III, Mesa Verde component. The possibility of a Basketmaker II component is suggested by the hardpan cists, but further analysis of materials would be required to substantiate this.

The ceramic situation is rather different at Feature A, which is located about 50 meters northeast of the main site area. The presence of a possible Basketmaker III component, represented by two Chapin Gray body sherds, is similar, but the picture during the Pueblo periods is not at all the same. Feature A has a fairly strong late Pueblo II-early Pueblo III Kayenta component, mainly represented by eight sherds of Sosi Black-on-White. The 38 Tusayan Corrugated sherds also represent the Kayenta ceramic tradition, but could as easily date from the Pueblo III period as from Pueblo II. One sherd of Mancos Black-on-White shows that the late Pueblo II component includes a minimal amount of material of the Mesa Verde ceramic tradition. Finally, the presence of nine sherds of Citadel Polychrome and a few unidentified sherds of Tsegi Orange Ware contribute to the late Pueblo II-early Pueblo III look of Feature A. As for Pueblo III occupation, it is suggested by 14 sherds of a corrugated ware with "quartz plus other"

temper and by nine sherds of Mesa Verde White Ware with sherd temper.

Looters' pits and historic inscriptions attest to the frequency, or at least the intensity, of recent visitation to the site. A total of 64 looters' pits were identified and tagged. Tagging was done by putting labeled cards in plastic bags which were then buried three to four inches deep in each pit. The brass tags normally used had been used up by the unexpectedly large number of pits at the "Green Mask" Site. Some of the pits are actually prehistoric cists which may or may not have been cleaned out by pot hunters. Inscriptions include those of "Charles McLoyd, 1891"; "H. French", "1-29-74" (?); and "J.G. Ethridge, January 1894, February 1897".

Although this site has been quite badly disturbed, some potential for productive work remains. In particular, several square meters of completely undisturbed cultural fill were noted in the vicinity of Feature D which might yield artifactual materials and prehistoric plant and animal remains in good stratigraphic context. There is a fair possibility that further undisturbed fill remains in other areas of the site between looters' pits or under backdirt piles. Wetheriil (1896-7) stated that an area in the vicinity of pit 52 remained to be excavated (see pg. 22), and some of this may still remain. A very small amount of undisturbed fill remains at Feature A.

Among other things, answers to questions concerning shifts in subsistence base between the Pueblo II and Pueblo III periods might be available through careful excavation of selected areas of this site. The question of Basketmaker II occupation of this site could be put in better focus through excavation and by examination of the materials removed by Wetherill in 1894 and 1897. The possibility exists as well that unpotted burials remain in the rocky area in the front of the site cave.

NA12,653 (GG73-198; 42 Sa 3716; BLM #192)

Site NA12,653, known as the "Perfect Kiva", is located high in a rincon on the east side of Bullet Canyon, a major tributary of Grand Gulch. The "Jail House" site, as well as two burial caves included in the present study, NA12,641 and NA12,654, are located short distances downstream in Bullet Canyon. The Perfect Kiva is located under a rather deep overhang situated on the northwest side of the rincon, giving it a southeastern exposure. The floor of the shelter lies some distance above the wash, and the intervening space consists of a steep bedrock exposure covered in some places with a talus of small boulders. The drip line runs along this slope fronting the site, and, as one might expect, any cultural fill has long since washed away from this point. The site shelter is not particularly long, measuring only about 75 meters from end to end. However,



LEGEND

- P2 - LOOTER'S PIT
- (dashed circle) - PIT BACKDIRT
- (brick pattern) - DRY WALL MASONRY
- (brick pattern with mortar) - MORTARED MASONRY
- (irregular shape) - ROCK OR BOULDER
- 15 - ARTIFACT COLLECTION UNIT



the area under the overhang is fairly wide, measuring at its maximum point in the center of the site some 15 meters from the cliff wall to the drip line.

In the western half of the site, roof fall from the overhang is abundant and most of the shelter floor is on a rather steep slope. Both of these factors seem to have affected the way in which this portion of the site was utilized. Architecture is limited to two probable storage rooms, Features A and B. Each of these structures takes advantage of a set of parallel boulders to provide a portion of its walls. A storage function is inferred from the lack of sooting on the interior, from the elongate configuration and limited quantity of available floor space, and from the presence in Feature A of building characteristics presumably designed to seal the structure from the unwanted incursion of rodents. The presence of a hearth next to Feature B suggests that possibly, along with food storage, food preparation was an activity performed in this area. Several of the boulders in this area are covered with numerous "axe grooves" and shallow grinding basins.

The eastern half of the site is more level than the western half, and its floor has fewer boulders and more loose fill. Much of this fill is a midden deposit, which appears to be the deepest and of the darkest color on the slope toward the front of the site. A considerable quantity

of cultural material, including perishables, was collected from this deposit, which has been severely looted. The architectural features in this half of the site are located behind the midden and toward the center of the site. The extreme eastern portion of the site is devoid of structures.

Of particular interest among the structures is the "perfect kiva" itself. This structure, Feature G on the plan, is a subterranean kiva with the roof almost entirely intact. It is roughly circular and measures slightly more than four meters in diameter. The kiva is oriented north-south with the ventilator opening, southern recess, roof entrance, deflector, and wall niche all along this axis. There are eight regular pilasters in the kiva, plus one other pilaster on the northwest side which is perhaps associated with some repair of the structure. The area above the kiva's roof is set off as a small courtyard. The northern and northwestern edges of the roof are outlined with a row of slabs. The southern edge of the roof is outlined by a one meter high dry wall running east-west between the edge of the roof and the exterior ventilator opening. Similar walls run north from the ends of this wall on both the east and west sides of the kiva. These three dry walls, constituting Feature F, partially enclose a space consisting of the kiva roof and some additional ground on the edges of the kiva. The north side of this small plaza or

courtyard is delimited by a masonry structure, Feature H, whose roof is fallen but is still partly intact. This structure may exhibit double wall construction on the sides and a recess in the back wall against the cliff, both characteristics sometimes associated with kivas. The kiva (Feature G) definitely served as a "ceremonial" function, and the courtyard and facing structure (Feature H) may have shared in this.

Other structures in the eastern half of the site give evidence of having been used for storage and habitation. The remains of five structures are located along the rear of the shelter to the west of the kiva and its associated structures. Because of their generally small size, lack of sooting, and manner of construction, three of these, Features C, D, and E, are presumed to have been used for storage. The walls of Feature E, up to and including the lintel over the door, are largely intact. The small size of the door, as well as the small size of the room provide the strongest evidence for any of these three structures of a storage function. As in the case of Feature B, Feature D is associated with an exterior hearth, again suggesting food preparation as another activity performed in the immediate vicinity. Two other structures are inferred to have been used for habitation, because of the soot blackening on the back of the overhang both to the west of Feature C and

between Features D and E. In the former case, all that remains is the soot blackening on the shelter wall. As for the latter, there is the soot blackening along with one masonry wall, a concentration of pieces of jacal on the ground, and a low column set against the blackened rock in the rear of the structure. This room was probably fairly large, another argument in favor of its having been used for habitation.

Both petroglyphs and pictographs are present at the Perfect Kiva. Petroglyphs are represented by two simple designs pecked into the boulder serving as the south wall of Feature A. The most interesting pictograph is located on the shelter wall above Feature D. Here, light green paint has been used to produce a rectangular design with rounded corners, surrounded by a narrow band painted in the same color. The entire design is approximately .4 meters wide and .3 meters high. The bottom left corner of the design has broken away, and the missing pieces, still painted, are lying nearby on the shelter floor. A third artistic medium, most similar to that of petroglyphs, is represented by a design on the front wall of Feature H. This design has been scratched in a tan layer of plaster to expose the more reddish plaster beneath. It is laid out in a half circle, and perhaps in adjacent half circles, although the second half is largely obliterated. The more intact

half contains several series of nested triangles radiating from the general vicinity of what would be the center of the circle if it were whole.

Work was performed at the Perfect Kiva on June 11, 1974. Two baseline segments set end to end were used as a guide for mapping and collecting the site. Grid squares four meters on a side were laid out from these base lines and used as collection units. All perishable material was collected at this site. Sherds, ground stone, and chipped stone were not collected. (This site has since been completely surface collected by the 1974 Cedar Mesa Project). Ceramics observed on the surface of the site date from the late Pueblo II and Pueblo III periods. As for the perishable material collected, the artifactual material includes almost 50 pieces of Z-twist cord, almost 100 yucca fiber knots, several pieces of worked wood, an arrow fore-shaft, and a number of corn cobs with holes at one end, apparently for the insertion of a stick. Non-artifactual material includes over 800 corn cobs, more than 200 pieces of squash rind, and a few mammal and bird bones. The corn cobs and squash rind pieces from this site may prove to be a valuable resource for students of prehistoric domesticates and agricultural practices.

The site definitely has not gone unnoticed during the last century. There are a number of inscriptions identifying

early visitors to the site. On a boulder one can read "1894 E. Knowles" and "Wetherill 1894"; on the cliff "H. French"; and on the wall of the kiva "C. C. Graham, Jan. 11...". Looters' pits are abundant; a total of 38 with associated backdirt piles were recorded. Many of the pits are in the midden area on the slope in front of the kiva. The roof of Feature H has come down in very recent years, probably as a result of being climbed on by some careless visitor. The timely restoration work carried out during the fall of 1974 should help make the site more resistant to this type of damage.

The "Perfect Kiva" site has some interesting research potentials. The substantial amount of wood at the site could be cored for dendrochronological analysis, and the architecture recorded and analyzed in detail by the methods used by the Cedar Mesa Project in the fall of 1974. This type of study would have virtually no impact on the resource.

Excavations at the site would also provide useful information. Excavations in and around the structures would reveal floor features, and possible evidence of rebuilding or architectural superposition (the latter is not likely, because of the shallowness of the fill). The structures do not seem to have been thoroughly cleaned out by previous diggers, so some artifacts are likely to be recovered in sites. The midden deposits, though limited and badly

disturbed, have some promise. The culture history of the site may be recorded stratigraphically in the midden layers. A good bit of the midden appears, on superficial inspection, to be Pueblo III. In some parts, it is composed of a series of thin hard strata, probably packed down by prehistoric foot traffic. The organic materials (cultigens, wild plants, food bone, feces) contained in these layers may reveal important data on subsistence and/or surrounding ecological conditions. The many thin layers possibly hold a detailed record of continuity and change in these variables, even including, perhaps, data on seasonal differences in diet and in other uses of the plant and animal resources of the area.

NA12,654 (GG 73-201; 42 Sa 3717)

Site NA12,654 is a burial cave located on the north side of Bullet Canyon, a major tributary of Grand Gulch. Two other sites described in the present report, NA12,653 and NA12,641 are located in the vicinity. Both are up canyon as is a third site, the "Jail House", which was not incorporated in this study. Another shelter, deeper and of comparable height to that housing NA12,654, is located immediately to the northwest around a bend in the cliff. This shelter has no floor and the only evidence of human activity is to be found in the numerous pictographs on the cliff. The canyon in the area of all of these sites and shelters exceeds 400 feet in



depth. The shelter in which NA12,654 is situated has a southwestern exposure. This is in contrast to most of the other sites covered in this report which have a southern to southeastern exposure. The floor of the shelter lies atop a steep talus, high above the wash. The back wall or ceiling of the shelter thrusts upward from the floor at a steep angle. In fact, the overhang has only a slight curve outward, and the protection which it provides is the result of its great height rather than any tendency to curve forward to approximate the configuration of a roof. This situation is in contrast to that exhibited at the "Perfect Kiva", NA12,653, where the overhang does indeed curve outward and take on the configuration of what perhaps can best be described as a roof or ceiling.

The character of the floor of the cave can be summarized by one short phrase: boulders, large and small, almost everywhere. The spaces between these boulders are filled with loose sand. Over most of the shelter floor this fill seems to be quite shallow, extending down only to the boulders lying below. These conditions extend over the entire length and breadth of the cave, distances of 90 and 8 to 14 meters, respectively.

Site NA12,654 was mapped and collected on June 7 and 8, 1974. The central portion of the site was mapped using one 50 meter baseline segment. This baseline segment was extended

at either end by means of a sketch map in order to take in the peripheral portions of the site. All artifactual material and non-artifactual perishable materials seen on the surface were collected. Collection was done in two meter square units.

The site functioned primarily as a burial cave, probably for people of the Basketmaker II period. This inference is based on the types of artifacts recovered from the site and on analogy with work done by others in similar shelters. Human bone collected at the site represents at least nine distinct individuals. Perishables include numerous corn cobs, quite a few squash or gourd rinds, and wads of yucca fiber. A total of 35 sherds were also collected at the site. Included are sherds of Mesa Verde Black-on-White, and Mesa Verde Corrugated. These sherds represent a Pueblo III period component at the site and suggest that the shelter was used more recently than Basketmaker times. Further analysis or research would be required to try to determine what the more recent users of the cave were doing there. It is possible that some of the corn cobs collected at the site relate to its use for storage by the people of the Pueblo III period. The jacal noted at the western end of the cave may be evidence of such activity.

As is typical of the sheltered sites visited during the present study, the primary evidence of recent human activity

at the site takes two forms, looters' pits and graffiti. Looters' pits are numerous, a total of 41 pits being recorded and tagged. Several additional pits in the extreme eastern end of the site, past the cultural area, were recorded but not labeled. Toward the rear of the shelter almost all of the fill not occupied by pits is covered with the backdirt which came from those pits. In fact, it is likely that many older pits underlie those piles of backdirt. In addition to creating the pits, the activities of pot hunters have uncovered the human skeletal material mentioned above, tearing it from its original context. As for graffiti, the historic inscriptions include the names of three individuals frequently encountered in and around Grand Gulch. These are, "H. French", "J. L. Ethridge", and "Y. Y. Billings", all members of Wetherill's 1893-4 expedition in Grand Gulch. These inscriptions serve as a reminder that at least some of the present day appearance of the site, with its numerous pits, is the result of work done by the early explorers of Grand Gulch and its tributary canyons.

The situation concerning research potentialities at this site is very analogous to that of site NA12,641. Although the site appears to have been well dug over, complete excavation of sections of the site might reveal undiscovered burials or limited areas of undisturbed fill. It does not appear that cultural remains have been buried

by rock fall during the time since Basketmaker II utilization of the site. All in all, further research possibilities at this site don't seem to be great, and there would probably be a low return for the effort invested, in comparison with other sites in the Grand Gulch area. The pictographs at this site might prove to be the most fruitful objects of study at this site.

NA12,655 (42 Sa 3718)

Site NA12,655 is located a considerable distance to the south of the other sites covered during the present study. The nearest of these sites, those in Bullet Canyon, are some 9 miles, as the eagle flies, to the east-northeast. Site NA12,655 is located under a moderately deep overhang on the east side of Grand Gulch. Consequently, it has a western exposure. The area within the shelter is more than 100 meters long and up to 15 meters wide. The floor of the cave consists of a fairly level platform of what appears to be rock fall, less than 10 meters above the bottom of the adjacent wash. Remnant beds of clay, or hardpan, occur in the southern half of the shelter; boulders are abundant across much of the northern half. There is evidence in the form of lime encrusted sandstone and now dead plants that there may formerly have been a seep in the back of the shelter.

The presence of a sheltered space, clay, hardpan for

cists, and possibly water would have made this shelter attractive to the prehistoric inhabitants of the area. These factors might have counteracted what would appear to have been the primary disadvantage of this locale, namely, its western exposure. A shelter with this exposure does not receive the morning sunlight, whereas morning sunlight is a feature of many shelters occupied by the Anasazi. However, two activities apparently performed at this site, storage and burial, were sometimes situated without regard to shelter exposure. Habitation may have been only of a temporary nature at NA12,655.

Work was performed at this site on June 16, 1974. A map was made of the site with the aid of two 50 meter baseline segments. Architectural features, artifact collection locations, looters' pits and backdirt, and areas of boulders and clay or hardpan were located on the map. Collections at this site included all human bone, perishable artifacts, non-artifactual perishable material, lithics, and ground stone and ceramics. The human bone represented a minimum of six individuals. Perishables included two dozen corn cobs, several objects of worked wood, and yucca quid. Lithic materials consist of more than 200 flakes, two cores, two choppers, a hammerstone, and a projectile point. As for ground stone, four manos were collected.

Ceramic material collected at the site suggests that

it was occupied during both the Basketmaker III and Pueblo II and III periods. The earlier Basketmaker II period, which was preceramic, would go unnoticed in this ceramic analysis, although the hardpan cists suggest a possible occupation during that period. Some Basketmaker III period use is suggested by a handful of Lino Gray body sherds. Identification of this type would be more secure, and the resulting inference stronger, if rim sherds had also been found. The sparse late Pueblo II-early Pueblo III component indicates use of this shelter by people of the Kayenta pottery making tradition. In particular, a few sherds of Sosi Black-on-White were collected, in addition to other Tusayan White Ware sherds unidentified as to type. A heavier Pueblo III Mesa Verde component was identified by the presence of Mesa Verde Black-on-White sherds. Most of the Mesa Verde Corrugated sherds appear to come from one vessel.

The structures at the site, which occur only in its southern half, fall into two general categories: those suitable for habitation and those suitable for storage. Habitation, most probably on a short-term basis, is inferred for the structure, today consisting merely of an outline of stones, straddling the baseline between meters 35 and 39, and for the structure immediately to its north. This latter feature consists of a low mound of jacal. It is unlikely that either of these structures was substantial; both may

have been roofless structures, windbreaks utilized on a temporary, and perhaps a seasonal, basis. Whatever the nature of their use, neither appear to have been suitable for storage, an activity which generally requires a structure capable of being sealed so as to protect perishable food-stuffs from rodents and from the elements.

Underground storage structures are abundant at the site. One large, square cist is masonry lined; another cist is slab lined; and numerous other cists, dug in the hardpan, are unlined. The masonry cist suggests the workmanship of Anasazi people of the Pueblo periods, while the slablined and unlined cists are more reminiscent of Basketmaker storage units. However, these "earlier" styles of cist construction may have continued on into the Pueblo periods, though with a lesser frequency of occurrence.

Prehistoric sites in Grand Gulch show abundant evidence of visitation during the last century, and NA12,655 is no exception. The inscriptions "Wetherill, 1894" and "Y.Y. Billings, 1894" occur twice each. A total of 48 pits were identified, most of which were looters' pits. The storage cists were also included in this tally, for they also appear to have been looted. In fact, as the map of the site shows, some of these cists have associated looters' backdirt piles.

Research potentialities at this site appear to be few. There was no evidence of undisturbed cultural fill remaining.

A number of the looters' pits, in fact, appear to have been dug in sterile floor fill. The various subterranean storage features all appear to have been dug into and largely emptied. Of these, pit 16 is the most promising, with portions of its floor possibly undisturbed. Pollen analysis of samples of undisturbed floor soil, if available from within any of these features, could aid in the determining of what was stored in these features in prehistoric times.

APPENDIX B
Summary of Collection Inventory

SITE NA12,641

<u>A. Ceramics</u>	<u>Number of Sherds</u>
Unidentified Mesa Verde White Ware, decorated, sherd temper	1
Unidentified Mesa Verde White, Ware, undecorated, crushed rock temper	1
Tusayan Corrugated	2
Mesa Verde Corrugated, Mesa Verde Variety.	1
 <u>B. Chipped Stone</u>	 <u>Number of Pieces</u>
Chopper.	1
Hammerstone.	1
Flakes	17
 <u>C. Ground Stone</u>	 <u>Number of Pieces</u>
Abrader.	1
Mano (oval-uniface-convex)	1
(oval-biface-convex).	1
(rectangular-biface convex)	1
Yellow ocher/sandstone fragment.	1
 <u>D. Artifactual Perishable Material</u>	 <u>Number of Pieces</u>
Basketry (basket closed coiled).	62
(basket two-rod foundation)	17
(basket split twig stitch).	4
(basket misc. fragments).	9
Bone awl	1
(unidentifiable)	1
Feather cord	1
Human hair cord (braid twisted).	1 bunch
(s-twisted).	1 bunch
(z-twisted).	1 piece &
	1 bunch
Human hair-hide cordage.	6
Feather-yucca-fur cordage.	74 pieces,
	2 small bags &
	1 large bag
Leather (pieces)	17
(strips)	1
Squash rind.	1
Sandstone disk	1
Textile.	2

<u>D. Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Unidentifiable plant bark	2
cordage	4
hull-rind	3
strips	1
wads	1
Misc. woven fragments	4
Wood twig-knot	1
Yucca braided	1
cordage	2 pieces, & 1 bundle
cord (knotted)	4
cord (z-twisted)	39
cord (s-twisted)	4
knot	6 pieces, & 1 bunch
leaf leaf	3
"quid"	2

<u>E. Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Bone (chunk)	2
(mammal)	7
(unidentified)	48
Carbonized material	1
Charcoal twig, stick	20
(unidentified)	1
Corn cob	62
seed	1
stem	2
Feces (human)	2
(unidentified bag)	1
(unidentified)	14
Hair, fur (mammal)	2
Juniper bark	2
Clay impression (basket)	1
Squash hull, rind	2
Teeth (mammal)	4
Unidentified Plant seed	2
Wood bark	1
chunk	1
twig, stick	4

SITE NA12,648

A. <u>Ceramics</u>	<u>Number of Sherds</u>
Sosi B/W	2
Unidentified Tusayan White Ware, undecorated . . .	10
Mancos B/W	4
Mesa Verde B/W, mineral paint.	2
Mesa Verde B/W, organic paint.	30
Unidentified Mesa Verde White Ware, decorated, crushed rock temper.	3
Unidentified Mesa Verde White Ware, decorated, sherd temper	1
Unidentified Mesa Verde White Ware, undecorated, crushed rock temper.	12
Unidentified Mesa Verde White Ware, undecorated, sherd temper	15
Unidentified Tsegi Orange Ware, undecorated, unslipped.	6
Unidentified San Juan Red Ware, undecorated, unslipped.	1
Medicine Gray.	3
Tusayan Corrugated	25
Corrugated, quartz plus other temper	73
Mesa Verde Corrugated, Mancos Variant.	2
Mesa Verde Corrugated, indeterminant as to Variant.	2
Unidentified Ware, undecorated	16
B. <u>Chipped Stone</u>	<u>Number of Pieces</u>
Chopper.	2
Chopper-core	1
Cores.	7
Crude biface	1
Flakes	78
Knife.	1
C. <u>Ground Stone</u>	<u>Number of Pieces</u>
Abrader.	3
Cooking stone.	1
Mano (Rectangular biface-flat)	1
(Rectangular uniface-convex).	3
(Irregular uniface)	1

D. Artifactual Perishable Material Number of Pieces

Basketry fragments (closed coiled)	3
(charred fragment).	1
(plain weave)	1
Buckskin	1
Cotton cord (z-twist).	3
Juniper (worked)	1
Leather (strips)	1
Reed, cane	
knot	1
Turkey feather, yucca, and fur	
Cord	6
Unidentified Plant	
"quids".	2
knot	1
Wood	
Arrowshaft	1
Yucca cord (z-twist)	8
knot	13
sandal (?)	1

E. Non-Artifactual Perishable Material Number of Pieces

Cone (unidentified).	1
Corn cob	18
fiber-strand.	2
husk.	5
stalk	8
Hair, fur (mammal)	1
Reed, cane	
fiber-strand	1
Unidentified Plant wad	1
Yucca	
fiber-strand	3

SITE NA12,649

<u>A. Ceramics</u>	<u>Number of Sherds</u>
Mesa Verde B/W, organic paint.	1
Unidentified Mesa Verde White Ware, decorated, crushed rock temper.	1
Unidentified Mesa Verde White Ware, decorated, sherd temper	1
Unidentified Mesa Verde White Ware, undecorated, crushed rock temper.	2
Unidentified Mesa Verde White Ware, undecorated, sherd temper	1
Unidentified San Juan Red Ware, decorated, slipped.	1
Unidentified San Juan Red Ware, undecorated, slipped.	1
Unidentified San Juan Red Ware, undecorated, unslipped.	1
Lino Gray - Rims	2
Lino Gray - Body sherds.	7
Corrugated, quartz plus other temper	5
Chapin Gray, body sherds	6
Mesa Verde Corrugated.	1
Unidentified Ware, decorated	2
<u>B. Chipped Stone</u>	<u>Number of Pieces</u>
Chopper.	2
Core	1
Flakes	33
Pecking stone/core	1
<u>C. Ground Stone</u>	<u>Number of Pieces</u>
Abrader.	2
Mano (biface-convex)	1
<u>D. Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Worked Bone.	1
Corn cob with stick hole	1
Metal can.	1
Unidentifiable metal piece	1
Unidentifiable cord (s-twist).	2
Yucca cord (z-twist)	1
fiber.	1 bunch
knot	2

E. <u>Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Bone (bird)	3
(mammal)	5
(unidentifiable)	15
Feces (mammal)	2
Unidentifiable feather	1

SITE NA12,650

A. <u>Ceramics</u>	<u>Number of Sherds</u>
Mesa Verde B/W, organic paint.	3
Unidentified Mesa Verde White Ware, decorated, sherd temper	4
Deadman's B/R.	1
Tusayan Corrugated.	3
Corrugated, quartz plus other temper	4
Mesa Verde Corrugated, Mesa Verde variety.	2
Unfired sherd.	1

E. <u>Chipped Stone</u>	<u>Number of Pieces</u>
Core	1
Flakes	10

C. <u>Ground Stone</u>	<u>Number of Pieces</u>
Abrader.	1

D. <u>Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Basketry (fragments)	11
Corn cobs (modified)	10
Cotton cord (z-twist).	1
Feather cordage.	1
cord (z-twist)	2
wad.	4
Human hair cord (s-twist).	1
(z-twist).	1
Mammal fur	2
Juniper fiber.	1
Leather cord (z-twist)	9 & 2 bags
(unidentifiable).	1
Shell (ornament)	1
(perforated)	1
Unidentifiable plant cord.	1
cord (z-twist).	15
fabric.	3
knot.	1
sandal (?).	1
(unidentifiable).	1
Wood (work shafts)	3
Yucca cordage.	2
cord (z-twist)	2
knot	1
"quid"	1

<u>D. Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Bone (mammal)	22
(unidentifiable)	81
Corn cob	68
husks	1 bag
stalks	5
stems	4
Human skin	1 bag
Mammal fur	1
Shell	3
Squash Rind-Hull	13
Seed	1
Teeth (mammal)	6
Unidentifiable strand-fiber	1
Wood twig-stick	1
Yucca stems	2

SITE NA12,651

A. <u>Ceramics</u>	<u>Number of Sherds</u>
Black Mesa B/W	2
Sosi B/W	6
Dogoszhi B/W	1
Unidentified Tusayan White Ware, undecorated	4
Unidentified Tusayan White Ware, decorated	1
Chapin B/W	2
Mancos B/W	21
Mesa Verde B/W, mineral paint.	2
Mesa Verde B/W, organic paint.	98
Unidentified Mesa Verde White Ware, decorated, crushed rock temper.	7
Unidentified Mesa Verde White Ware, decorated, sherd temper	14
Unidentified Mesa Verde White Ware, undecorated, crushed rock temper.	26
Unidentified Mesa Verde White Ware, undecorated, sherd temper	157
Citadel Polychrome	3
Unidentified Tsegi Orange Ware, undecorated, slipped.	2
Unidentified Tsegi Orange Ware, decorated, unslipped.	1
Unidentified Tsegi Orange Ware, undecorated, unslipped.	6
Abajo Red on Orange.	1
Deadman's B/R.	4
Middleton B/R.	1
Unidentified San Juan Red Ware, decorated, unslipped.	2
Unidentified San Juan Red Ware, undecorated, slipped.	9
Unidentified San Juan Red Ware, undecorated, unslipped.	9
Lino Gray - Rims	2
Lino Gray - Body Sherds.	83
Medicine Gray.	1
Tusayan Corrugated	95
Moenkopi Corrugated.	3
Corrugated, quartz plus other temper	293
Chapin Gray, rim sherds.	7
Chapin Gray, body sherds	44
Mesa Verde Corrugated.	94
Unidentified Mesa Verde Gray Ware.	3

A. <u>Ceramics</u>	<u>Number of Sherds</u>
Unidentified White Ware, decorated	3
Unidentified White Ware, undecorated	10
Unidentified Red or Orange Ware, undecorated . .	1
Unidentified Gray Ware, undecorated.	12
Unidentified Corrugated, sherd temper.	1
Unidentified Ware, undecorated	28
Unidentified Ware, decorated	2
Untyped Worked Sherds.	3

B. <u>Chipped Stone</u>	<u>Number of Pieces</u>
Axe (secondary usage - polishing stone).	1
Cores.	63
Choppers	6
Flakes	1554
Hammerstones	5
Pecking stone.	1
Scrapers	5

C. <u>Ground Stone</u>	<u>Number of Pieces</u>
Abrader.	1
Cooking slabs.	6
Grinding slabs	4
Grinding stones.	9
Mano (oval biface-convexed).	8
(oval uniface-convexed)	6
(oval uniface-flat)	1
(oval plano-convexed)	1
(rectangular biface-convexed)	3
(rectangular uniface-convexed).	6
(rectangular uniface-flat).	1
(irregular uniface)	3
(irregular biface).	4
Pecking-Polishing stone.	1
Polishing stone.	4
Rubbing stone.	1

D. <u>Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Arrow shaft fragment	1
Basketry fragment.	1
Bone (worked).	4
Cordage (various).	87
Corn cob (modified).	110
Corn husk knot	4

<u>D. Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Fabric strap (woven)	1
Fiber bundle, matted ("quid").	35
Hair bundle.	6
Leather fragment	1
Pendant (ground calcite)	1
Shell bead	1
Textile fragment	1
Wood (worked).	12
Yucca knot	27

<u>E. Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Acorn.	2
Charcoal	2
Corn	
Cob.	2930
Stalk.	104
Husk	48
Wad, Bundle.	1
Seed	1
Cotton	1
Eggshell	5
Feather.	12
Feces	
(Mammal)	6
(Human).	2
(Bird)	1
Gourd	
Hull, Rind	241
Seed	9
Stalk.	2
Grass	
Stalk.	3
Seed	1
Leaf, Blade.	1
Hair, Fur	
(Mammal)	1
(Human).	1
Juniper	
Bark	7
Seed	51
Prickly Pear	
Leaf, Blade.	2
Reed, Cane	
Stalk.	1
Squash	
Stalk.	1
Seed	1
Thistle	
Stalk.	1
Flower	1

<u>E. Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Unidentified Plant	
Leaf, Blade	2
Fruit.	1
Cone	3
Wood	
Strip.	3
Twig	6
Bark	10
Yucca	
Wad, Bundle.	3
Leaf, Blade.	3
Stalk.	9

SITE NA12,652

<u>A. Ceramics</u>	<u>Number of Sherds</u>	
Sosi B/W	8	Feature A
Unidentified Tusayan White Ware, undecorated . . .	3	
Mancos B/W	1	
Unidentified Mesa Verde White Ware, undecorated, Sherd Temper	9	
Citadel Polychrome	9	
Unidentified Tsegi Orange Ware, undecorated, slipped	1	
Unidentified Tsegi Orange Ware, undecorated, unslipped	2	
Tusayan Corrugated	38	
Corrugated, quartz plus other temper	14	
Chapin Gray, body sherds	2	
Mesa Verde Corrugated, indeterminant as to variant	3	Total Site minus Feature A
Unidentified White Ware, decorated	1	
Unidentified White Ware, undecorated	6	
Unidentified Gray Ware, undecorated	1	
Unidentified Corrugated, sherd temper	4	
Mancos B/W	1	
Mesa Verde B/W, mineral paint	2	
Mesa Verde B/W, organic paint	8	
Unidentified Mesa Verde White Ware, undecorated, sherd temper	7	
Unidentified Tsegi Orange Ware, decorated, slipped	1	
Lino Gray-body sherds	3	Total Site minus Feature A
Tusayan Corrugated	1	
Moenkopi Corrugated	1	
Corrugated, quartz plus other temper	18	
Chapin Gray, body sherds	1	
Mesa Verde Corrugated, Mesa Verde variant	1	
Unidentified corrugated, sherd temper	1	
Unidentified Ware, undecorated	1	
Unidentified Ware, decorated	1	

<u>B. Chipped Stone</u>	<u>Number of Pieces</u>
Axe	1
Chopper	7
Chopper-Hammerstone	1
Cores	16

<u>B. Chipped Stone</u>	<u>Number of Pieces</u>
Flakes	420
Hammerstone	1
Hammerstone-pecking stone	1
Misc. fragment	2

<u>C. Ground Stone</u>	<u>Number of Pieces</u>
Abrader	3
Grinding stones	7
Manos (oval biface-convex)	1
(oval biface-plano-convex)	2
(oval uniface-flat)	2
(oval uniface-convex)	1
(rectangular biface-convex)	1
(rectangular uniface-convex)	1
(rectangular uniface-flat)	1
(irregular uniface)	3
(irregular biface)	5
Polishing stone	1
Uniface slab	1

<u>D. Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Corn	
Husk	1
Knots	1
Hair (Mammal)	
Cordage	1
Juniper	
Cordage	1
Reed	
Stalk	2
Unidentified Material	
Possible Cardboard	5+
Unidentified Plant	
Cordage	2
Yucca	
Knots	26
Matting	1
"Quids"	9
Cordage	6
Wads, Bundles	2
Strand, Fiber	11
Yucca/Feather	
Cordage	3

<u>E. Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Acorn	1
Charcoal	9
Corn	
Cobs	1,843
Stalk	95
Husk	65
Root	5
Seed	1
Feces	
(Human)	10
(Mammal)	3
Gourd	
Hull, Rind	150
Stalk	10
Grass	
Seed	2
Stalk	1
Juniper	
Strand, Fiber	2
Pine	
Twig, Stick	1
Cone	1
Reed, Cane	
Stalk	5
Squash	
Stalk	1
Hull, Rind	2
Seed	1
Unidentified Plant	
Stalk	2
Hull, Rind	1
Wood	
Twig, Stick	2
Xanthium	
Fruit	1
Yucca	
Wad, Bundle	1
Bark	1
Root	1
(Unidentified)	1
Stalk	7
Strand, Fiber	2

SITE NA12,653

<u>B. Chipped Stone Material (collected in with perishable material)</u>	<u>Number of Pieces</u>
Flakes	4

<u>D. Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Cane (phragmites) arrow fore-shaft	1
Corn cobs (modified)	49
husks (knotted)	6
Cotton cord (s-twist).	7
Feather quill.	1
wad.	2
(unidentifiable)	3
Human hair cord (z-twist).	1
Hair (mammal).	2
Juniper bark (knotted)	1
Leather (unidentifiable)	1
Unidentifiable plant fragment.	4
wad	12 & 1 bundle
Wood (worked).	2
(knot).	1
Yucca cordage.	7
cord (z-twist)	45
cord (braided)	1
knot	91
leaf	7
wad.	2

<u>E. Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Bone (bird).	7
(mammal).	20
(unidentifiable).	13
Charcoal (corn cob).	21
(unidentifiable).	3
Corn cob	830
husk.	26
seed.	1
stalk	13
stem.	10
unidentifiable.	2
Feather (unidentifiable)	10
Feces (mammal)	9
(unidentifiable)	3
Grass leaf	3

E. <u>Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Juniper bark	3
Prickly Pear leaf.	3
Squash rind.	228
seed.	6
stalk	2
stem.	5
(unidentifiable).	1
Unidentifiable plant bark.	1
twig-stick.	3
Wood	2

SITE NA12,654

<u>A. Ceramics</u>	<u>Number of Sherds</u>
Mesa Verde B/W, organic paint.	5
Corrugated, quartz plus other temper	6
Mesa Verde Corrugated, Mesa Verde variety.	6
Mesa Verde Corrugated, undifferentiated as to variety	18

<u>B. Chipped Stone</u>	<u>Number of Pieces</u>
Irregular Hammerstone (chert).	1

<u>D. Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Basketry fragments	11
Cordage (various).	84
Corn cob (modified).	5
Fabric strap (woven)	1
Fiber bundle, matted ("quid").	1
Leather fragments.	11
Pendant (ground stone)	1
Wood (burnt)	1
Wood (modified).	3
Yucca knot	2

<u>E. Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Acorns	8
Charcoal	6
Corn	
Cobs	88
Stalk.	5
Husk	9
Gourd	
Hull, Rind	32
Juniper	
Wad, Bundle.	1
Pine	
Twig, Stick.	1
Reed, Cane	
Stalk.	1
Wood	
Bark	1
Twig, Stick.	1
Yucca	
Strand, Fiber.	3
Wad, Bundle.	2
Stalk.	1

SITE NA12,655

<u>A. Ceramics</u>	<u>Number of Sherds</u>
Sosi B/W	3
Unidentified Tusayan White Ware, decorated	1
Unidentified Tusayan White Ware, undecorated	5
Mesa Verde B/W, organic paint.	9
Unidentified Mesa Verde White Ware, decorated, crushed rock temper.	1
Unidentified Mesa Verde White Ware, undecorated sherd temper	4
Medicine B/R	1
Tusayan B/R.	1
Unidentified Tsegi Orange Ware, decorated, unslipped.	1
Unidentified Tsegi Orange Ware, undecorated, slipped.	2
Unidentified Tsegi Orange Ware, undecorated, unslipped.	8
Unidentified San Juan Red Ware, decorated, slipped.	1
Unidentified San Juan Red Ware, undecorated, unslipped.	2
Lino Gray - Body Sherds.	10
Tusayan Corrugated	14
Moenkopi Corrugated.	2
Corrugated, quartz plus other temper	7
Mesa Verde Corrugated, Mancos variety.	3
Mesa Verde Corrugated, Mesa Verde variety.	84 *
Mesa Verde Corrugated, indeterminant as to variety.	157 *
Unidentified Corrugated, sherd temper.	5
Unidentified Ware, decorated	3

* Total Mesa Verde Corrugated. 244
(most of sherds possibly from one vessel)

<u>B. Chipped Stone</u>	<u>Number of Pieces</u>
Chopper.	1
Chopper-hammerstone.	1
Cores.	2
Flakes	205
Hammerstone.	1
Projectile point	1

<u>C. Ground stone</u>	<u>Number of Pieces</u>
Mano (oval uniface-convex)	2
(rectangular uniface-flat)	1
(rectangular uniface-convex).	1
Pounding-rubbing stone	1
Rubbing stone	1

<u>D. Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Corn cobs(modified).	24
Plastic or jet disk	1
Unidentifiable plant (s-twist)	1
Wood (worked).	3
(scoop)	1
Yucca knot	1
leaf	1
"quid"	1
wad	3

<u>E. Non-Artifactual Perishable Material</u>	<u>Number of Pieces</u>
Bone (mammal).	7
(unidentifiable)	12
Charcoal (twig-stick)	9
Corn cobs	405
husks	10
stalks	10
stems	3
(unidentifiable)	2
Feces (unidentifiable)	1
Oak seed	2
Pine bud	1
cone	1
Squash rind	24
Unidentifiable plant seed	1
twig-stick	1
Wood (twig-stick).	2
(unidentifiable)	2
Yucca bark	1
leaf	2
stalk	4

APPENDIX C

Analysis of Human Skeletal Material

NA12641: SUMMARY

I. Distinct Individuals

Fetus	2
Infant	1
Child	6
Adolescent	1
Adult male	11
Adult female	6
Indeterminate adult	15

TOTAL = 42

II. Bone from at least 14 individuals (two fetuses, two infants, two children, two adult males, two adult females, four indeterminate adults) not assigned an individual number.

III. Pathologies

Individual III: Osteoporosis; T11 slightly lipped; costal cartilages of both first ribs ossified; healed longitudinal fracture of left metacarpal III.

Individual V: Osteophytic spur on thoracic vertebra.

Individual VII: Severe osteophytic growth on metacarpal I.

Individual VIII: Osteophytic growth on right patella.

Individual X: Lesion on left rib.

Individual XI: Right maxillary third molar agenesis.

Individual XVI: Abscesses of mandibular I1's, left I2, C and PM1.

Individual XXVIII: Exostotic growth on thoracic vertebra.

Individual XXXI: Possible healed mid-shaft fracture of left(?) fibula.

Individual XXXII: Spongy hyperostosis.

Individual XXXIII: Unilateral spondylolysis of lumbar vertebra.

III. Pathologies (cont'd):

Individual XXXIV: Slight lipping of lumbar vertebrae.

Individual XXXV: Healed fracture of distal shaft of right ulna.

Miscellaneous

Adult Female: Incipient sacro-iliac fusion of right innominate.

Miscellaneous

Indeterminate

Adult: Slight lipping of lumbar vertebra; incipient sacralization of lumbar vertebra; small mid-shaft lesion of left radius.

NA12,641: Listing by location and pit numbers

Under each location and pit, the separate numbers indicate distinct individuals; for example, two distinct adults are represented by the collection made at Location 19.

Location 1:

1. Five adult arm bone (probably humerus) fragments - burned; individual I.

Location 2:

1. Three adult skull fragments, two innominate(?) fragments, three arm bone fragments, femur fragment, metatarsal fragment, metacarpal(?) fragment - all burned; individual I.

Location 3:

1. Two adult maxillary fragments (one containing alveoli for right incisors, canine and first premolar; all lost postmortem), four humerus fragments - all burned; individual I.

Location 4:

1. Five adult rib fragments, leg bone fragment, humerus head fragment, three arm bone fragments, three vertebrae fragments (one cervical body), carpal(?) fragment - all burned; individual I.

Location 8:

1. Four adult skull fragments, two vertebrae fragments, innominate fragment, four rib fragments, six arm bone fragments, carpal(?) fragment, two metacarpal fragments, left talus, left navicular fragment, two tarsal(?) fragments - all burned; individual I.

Location 14:

1. Proximal end of adult left humerus - soft tissue; individual II.

Location 16:

1. Adult hand phalange - individual II.

Location 19:

1. Two sternal ends of adult right ribs - still articulated; individual II.
2. Adult (?) skull(?) fragment.

Location 21:

1. Adult male right radius (soft tissue), left rib (soft tissue), three rib fragments, foot phalange (soft tissue), piece of skin (10.3 cm. X 11.7 cm.) - individual II.

Location 23:

NOTE: With the exception of the extra foot (listing number 2), this was a totally exposed, almost complete, individual burial. The skull was not connected, but the remainder of the skeleton was articulated and had to be cut apart (by DH) to facilitate transportation. The lower case letters under listing number 1 are inventories by bag. All of the bones have soft tissue attached. The burial is an adult male, probably in his late 30's or 40's; more precise aging is not possible, as no teeth are present, and the pubic symphysis is still articulated (aged by vertebral lipping and ossification). The individual was about 159.5 cm. (62.8 inches) tall during life (based on right femur, Genovés formula).

1. Individual III:
 - a. Skull and fragment - missing face; osteoporosis.
 - b. Piece of skin enclosed in compacted body fluids (unmeasurable).
 - c. Right tibia, fibula and foot - still articulated; foot complete except for metatarsal V and terminal phalanges I-IV.
 - d. Right femur.
 - e. Sacrum and L3-L5 - still articulated; slight vertebral lipping.
 - f. Left femur and innominate (with unattached fragment) and symphyseal face of right innominate - still articulated.
 - g. Articulated thorax (and four loose rib fragments) - C5-C7, T1-T12, L1-L2 (T11 slightly lipped), eight right ribs, 11 left ribs.
 - h. Right innominate (broken) and fragment.
 - i. Left tibia, fibula and foot - still articulated; foot complete except for terminal phalanges III and IV (terminal phalange I loose).

Location 23 (cont'd):

- j. Right metatarsal V, humerus, radius, ulna and hand (radius, ulna and hand still articulated), two pieces of skin (2.1 cm. X 2.3 cm. and 1.8 cm. X 2.1 cm.) - missing from hand: medial and terminal phalanges II, metacarpal and phalanges V.
- k. Left humerus, radius, ulna and three carpals - still articulated.
 1. Right rib, two rib fragments, right clavicle.
2. Adult left foot - still articulated; missing: both phalanges I, medial and terminal phalanges II-IV, terminal and most of medial phalange V; individual IV.

Location 24:

1. Adult left metacarpal IV - individual III.

Location 29:

1. Adult right foot - still articulated; missing terminal phalange V; individual IV.
2. Fetal left femur.
3. Child right ilium.
4. Adult sternum, left clavicle, sternal ends of both first ribs, sternal extremity of right clavicle (all articulated, but broken through manubrium; costal cartilages of both first ribs ossified), right scapula and fragment, left rib, left metacarpal III (healed longitudinal fracture) - individual III.

Location 30:

1. Adult right scapula fragment - individual V.

Location 32:

1. Four adult right ribs and four fragments; right metacarpal V fragment.
2. Piece of skin (4.6 cm. X 10.5 cm.).

Location 35:

1. Adult left ulna and patella - soft tissue; individual V.
2. Young adult mandibular left M3.

Location 38:

1. Adult female two pieces of skin (4.8 cm. X 3.4 cm. and 1.2 cm. X 2.7 cm.), right and left femora (left broken), two articulated thoracic vertebrae, five articulated thoracic vertebrae, four cervical and one thoracic vertebrae articulated (right first rib fragment attached), two left rib fragments - soft tissue on all bones; individual V.

Location 39:

1. Female, 18-25 years, left innominate (pubis broken off) and skull(?) fragment - soft tissue; individual V.

Location 41:

1. Adult male left innominate and four fragments, vertebral end of right rib, clavicle fragment, badly fragmented left tibia - all bone badly dessicated and fragmented; individual VI.

Location 42:

1. Adult male distal end of right ulna, six rib fragments, thoracic vertebra and vertebra fragment, three long bone fragments - individual VI.
2. Infant left humerus.
3. Adult hand phalange - individual VII.
4. Adult left rib.

Location 43:

1. Adolescent distal epiphysis of right femur and proximal epiphysis of left tibia - individual XXVI.

Location 44:

1. Fetal left tibia - individual XXV.

Location 47:

1. Two child rib fragments.

Location 49:

1. Adult left innominate fragment and three small fragments - individual VIII.

Location 50:

1. Adult left scapula and fragment.
2. Adult male left tibia and fibula (articulated), left femur and radius, four right innominate fragments, sacral fragment, six thoracic vertebrae fragments, both clavicles, right patella (osteophytic growth), two right ribs and fragment, left rib and fragment - stature of 161.4 cm. (63.5 inches), based on left tibia; soft tissue; individual VIII.
3. Adult male left ulna - individual VI.
4. Two adult left carpals - still articulated.
5. Adult left metacarpal I and II - severe osteophytic growth on metacarpal I; individual VII.

Location 51:

1. Adult male right femur and two fragments, distal end of left humerus, first sacral segment - soft tissue; individual VIII.
2. Adult female left tibia and humerus - stature of 152.4 cm. (60.0 inches), based on left tibia; individual V.

Location 52:

1. Adult distal end of right tibia and rib fragment - individual IX.
2. Child or infant left ilium and vertebral extremity of right rib.

Location 53:

1. Adult female right tibia and femora - stature of 152.4 cm. (60.0 inches), based on slightly damaged right tibia; individual X.
2. Three adult lumbar vertebrae, two thoracic vertebrae fragments - thoracics still articulated; soft tissue.

Location 54:

1. Adult male, 31-35 years - left innominate, left tibia, right scapula and clavicle, right patella, two cervical vertebrae, two right ribs, two left ribs and two fragments, right talus, left calcaneus, right metatarsal I - stature of 166.1 cm. (65.4 inches), based on left tibia; individual IX.
2. Adult female right scapula, thoracic vertebra, left vertebral extremity of rib with lesion - individual X.

Location 57:

1. Adult male right innominate and ulna - individual IX.

Location 58:

1. Adult left ulna and thoracic vertebra - individual X.

Location 61:

1. Adult left humerus and fragment - individual X.

Location 62:

1. Adult skull fragment, innominate(?) fragment, metacarpal fragment, 17 long bone fragments - individual XI.

Location 63:

1. Young adult right maxillary (M1 and M2 in place) with M3 agenesis and rest of teeth lost post-mortem, two skull fragments, left tibia and 12 fragments - individual XI.

Location 64:

1. Child, about five years, right scapula and radius - individual XII.
2. Adult axis, hand and foot phalange - individual IX.

Location 65:

1. Adult T12 and fragment, left metacarpal III - individual XIII.

Location 66:

1. Adult proximal end of left femur and six fragments, right metatarsal I - individual XIII.

Location 67:

1. Adult right scapula and clavicle, manubrium, left rib and fragment, right rib, right metacarpal V, right carpal, piece of skin (2.9 cm. X 5.7 cm.) - soft tissue; individual XIV.
2. Older child right pubis and ischium, left rib vertebral extremity, left talus - soft tissue; individual XV.

Location 68:

1. Adult right rib.
2. Adult foot phalange.
3. Two adult left ribs and thoracic vertebra - soft tissue.

Location 69:

1. Old adult male left, and part of right, side of mandible (right I1 and I2 present; left PM1 and both canines lost post-mortem, rest of left side teeth lost ante-mortem; abscesses of both I1's, left I2, C and PM1), left metacarpal IV - individual XVI.
2. Child, about five years, left radius - individual XII.
3. Adolescent or older child proximal femur epiphysis - soft tissue; individual XV.
4. Piece of skin (3.9 cm. X 2.5 cm.).
5. Adult left radius (small midshaft lesion) and thoracic vertebra.
6. Adult left rib, right metacarpal I and III, two articulated hand phalanges, right carpal - soft tissue; individual XIV.

Location 70:

1. Adult left rib - missing sternal extremity.
2. Adult clavicle(?) fragment.

Location 71:

1. Adolescent iliac blade epiphysis - individual XXVI.
2. Two adult scapula fragments - individual XVII.

Location 72:

1. Child rib fragment and proximal radius epiphysis.
2. Adult maxillary (broken) - left I2-M1 present, I1 missing post-mortem; right I1-PM1 and M1 missing post-mortem, PM2 missing ante-mortem; teeth too broken to determine age; individual XVIII.

Location 73:

1. Three adult femur fragments, five arm bone fragments, skull fragment - dessicated; individual XVIII.

Location 76:

1. Adult thoracic vertebra and ten rib fragments - individual XVII.

Location 77:

1. Adult left calcaneus and fragment of metatarsal V - individual XIX.

Location 78:

1. Adult foot phalange - individual XIX.

Location 80:

1. Three adult rib fragments and scapula fragment.

Location 81:

1. Old adult maxillary right I2 - individual XVI.

Location 84:

1. Adult female right tibia and proximal half of right femur - stature of 156.7 cm. (61.7 inches), based on right tibia; soft tissue; individual XX.

Location 87:

1. Adult rib fragment - individual XVIII.

Location 89:

1. Adult left tibia (missing distal end), right fibula (missing proximal end), distal end of left femur - soft tissue; individual XX.

Location 90:

1. Adult left rib - soft tissue; individual XVII.

Location 91:

1. Adult female left innominate (broken), lumbar vertebra - individual XX.

Location 94:

1. Three fetal skull fragments - individual XXI.
2. Male, 20-21 years, left innominate - soft tissue.
3. Adult thoracic vertebra - soft tissue; individual XVII.
4. Adult female femora (third trochanter on right), tibiae, fibulae (left missing proximal end, right missing distal end), humeri, ulnae, left radius, left clavicle, scapulae, six right ribs, four left ribs, three rib fragments, three cervical vertebrae, three right tarsals, right metatarsal I, right metacarpal I - stature of 149.7 cm. (58.9 inches), based on right tibia; soft tissue; individual XXII.

Location 95:

1. Adult long bone fragment - individual XXIII.

Location 96:

1. Three adult humerus fragments - individual XXIII.

Location 97:

1. Adult female left innominate - individual XXIII.

Location 98:

1. Adult vertebral end of left rib, long bone fragment - individual XXIII.
2. Adult left mastoid area.
3. Adult hand phalange - soft tissue; individual XX.
4. Piece of soft tissue (muscle?) - 5.4 cm. X 2.4 cm.

Location 99:

1. Three fetal long bone fragments - individual XXI.
2. Fetus (at least two months prior to birth) right maxillary.
3. Adult right metacarpal II with proximal and medial phalanges and four loose phalanges - still articulated; individual XX.
4. Adult right metacarpal III.
5. Child (young) tibia fragment, rib fragment, hand phalange.
6. Adult rib fragment.
7. Adult thoracic vertebra, long bone fragment, left rib, four rib fragments.

Location 100:

1. Adult male left femur and fibula, hand and foot phalange - soft tissue; individual XXIV.
2. Fetal or newborn skull fragment - individual XXV.
3. Adult tibia fragment.
4. Adult long bone fragment.
5. Adolescent left distal tibia epiphysis - individual XXVI.

Location 101:

1. Child right rib (missing vertebral extremity) - individual XXVII.
2. Infant or newborn femora - individual XXV.

Location 102:

1. Adult left scapula and three fragments - soft tissue.
2. Adult sacrum(?) fragment.
3. Adult hand phalange.
4. Adult left talus and metatarsal - soft tissue.

Location 103:

1. Adult (male?) left temporo-mastoid area.
2. Adult fibula fragment - individual XXIX.
3. Adult thoracic vertebra - exostotic growth at base of left superior articular facet; individual XXVIII.
4. Adult lumbar vertebra and fragment - slight lipping.

Location 104:

1. Two adult thoracic vertebrae - still articulated; individual XXX.
2. Child right rib (missing vertebral extremity) - individual XXVII.
3. Adult left scapula and fragment.
4. Adult(?) rib fragment.
5. Adult(?) skull fragment.

Location 105:

1. Adult thoracic vertebra - soft tissue; individual XXVIII.
2. Adolescent thoracic vertebra - individual XXVI.
3. Child, about eight years, right humerus - individual XXXI.
4. Adult right tibia - soft tissue; individual XXIV.
5. Child right rib and fragment - individual XXVII.
6. Six adult rib fragments.
7. Adult left femur fragment.

Location 106:

1. Child left ilium and ischium (unfused) and two thoracic vertebrae - individual XXXI.

Location 107:

1. Infant, 3-4 years, right ulna; individual XXXII.
2. Child four lumbar and two sacral vertebrae - individual XXXI.
3. Adult fifth lumbar vertebra - incipient sacralization (right side).
4. Adult humerus fragment.

Location 108:

1. Two adult left ribs - soft tissue on one; individual XXXIII.

Location 109:

1. Adult lumbar vertebra - soft tissue; individual XXX.
2. Adult lumbar vertebra fragment - slight lipping; individual XXXIV.
3. Child left(?) fibula shaft - possible healed mid-shaft fracture; individual XXXI.
4. Adult left femur shaft and cuboid.

Location 110:

1. Four adult skull fragments.
2. Infant or young child right half of frontal - spongy hyperostosis; individual XXXII.
3. Adult left scapula fragment.
4. Adult right first metacarpal.
5. Adult atlas and thoracic vertebra - soft tissue; individual XXVIII.
6. Adult female right innominate and fragment - incipient sacro-iliac fusion.
7. Young adult female sacrum - soft tissue.

Location 111:

1. Infant, about six months, right radius.
2. Adult skull fragment.
3. Child right metacarpal I.
4. Adult thoracic vertebra.
5. Two adult lumbar vertebrae and right patella - soft tissue; slight lipping of vertebrae; individual XXXIV.
6. Fetal skull fragment (zygomatic), left rib, vertebral body, right ilium, individual XXV.
7. Infant or young child right parietal, right scapula and fragment, four left ribs - individual XXXII.
8. Adult male humeri, proximal ends of right radius and left ulna, right tibia, left femur shaft, right femur fragment, left scapula and fragment (soft tissue), two cervical vertebrae, two thoracic vertebrae (soft tissue), lumbar vertebra with unilateral (right) spondylolysis, four left ribs and four fragments (soft tissue), two right rib fragments (soft tissue), right talus, left metatarsal II, right metacarpal V, foot and hand phalange - individual XXXIII.

Location 112:

1. Adult lumbar vertebra fragment, metacarpal or metatarsal fragment - individual XI.

Location 113:

1. Adult male left mastoid area and four skull fragments, right radius (missing distal end), two long bone fragments, left carpal, right vertebral extremity of rib - individual XI.

Location 114:

1. Adult thoracic vertebra fragment, vertebra fragment, three long bone fragments, left vertebral extremity of rib and fragment - individual XI.

Location 116:

1. Four adult skull fragments, rib fragment, two hand or foot bone fragments, nine long bone fragments - individual XI.

Location 117:

1. Adult right ulna - missing distal end; healed fracture of distal shaft; individual XXXV.

Location 118:

1. Adult right radius - individual XXXV.

Location 120:

1. Older child, about 10 years, right humerus, right tibia shaft, right metacarpal II - individual XXXVI.
2. Adult right radius (missing distal end), rib fragment - individual XXXVII.
3. Adult scapulae and four fragments, distal half of left humerus, left ulna (missing distal end), left fibula (missing proximal end), two right ribs, three thoracic vertebrae (still articulated) - individual XXXV.

Location 122:

1. Older child left metatarsal IV - individual XXXVI.
2. Adult thoracic vertebra, right rib, skull(?) fragment, three long bone fragments - individual XXXV.
3. Adult axis, right metatarsal III - individual XXXVII.

Location 123:

1. Adult right clavicle - individual XXXIX.

Location 124:

1. Adult right femur (missing head), tibia fragment, long bone fragment, rib fragment - individual XXIX.

Talus slope in front of site:

1. Adolescent distal epiphysis of left femur - individual XXXIII.
2. Adult foot phalange - soft tissue; individual III.

Pit 1:

1. Adult clavicle fragment, innominate fragment, long bone fragment - all burned; individual I.

Pit 2:

1. Fetal skull fragment.

Pit 5:

1. Adult right humerus and scapula (with two fragments) - still articulated.

Pit 10:

1. Two child rib fragments.
2. Adult right patella - soft tissue; individual III.

Pit 12:

1. Two pieces of skin - 6.5 cm. X 4.4 cm. and 3.2 cm. X 2.0 cm.

Pit 14:

NOTE: This was a totally exposed, almost complete, burial of a young adult female. The lower case letters under listing number 1 are inventories by bag. All of the bones have soft

Pit 14 (cont'd):

tissue attached. The individual cannot be aged more precisely because no teeth are present, and the pubic symphysis is still articulated (aged by vertebral lipping and ossification). The individual was about 153.2 cm. (60.3 inches) tall during life, based on the left femur.

1. Individual XXXVIII:

- a. Articulated pelvis and lower vertebral column, consisting of both innominates, sacrum, coccyx, L1-L5, T10-12, two left ribs (articulated) and one left rib unarticulated.
- b. Two unarticulated left ribs; articulated left side of thorax including T1-T9 and seven ribs.
- c. Articulated left humerus and scapula, five scapula fragments, two long bone fragments.
- d. Articulated right leg, including femur, patella, tibia, fibula and complete foot.
- e. Articulated complete sternum, left clavicle (fragment of left scapula attached), articulated left calcaneus and talus, four loose right ribs.
- f. Articulated left leg, including femur, tibia and fibula.
- g. Seven loose rib fragments.
- h. Five skull fragments.

Pit 15:

1. Adult left fibula, thoracic vertebra (osteophytic spur on right superior articular facet), left rib and fragment, right vertebral extremity of rib, rib fragment - soft tissue; individual V.

Pit 17:

1. Piece of skin - 6.5 cm. X 2.2 cm.

Pit 18:

1. Adult left ulna - missing distal end.

Pit 19:

1. Adult left fibula shaft (broken) and two fragments.
2. Adult left patella, two hand phalanges - soft tissue.

Pit 20:

1. Two pieces of skin - 15.0 cm. X 9.6 cm. and 28.0 cm. X 20.2 cm.

Pit 21:

1. Adolescent right femur - individual XXVI.

Pit 22:

1. Adult long bone fragment and mandibular left M2(?).

Pit 24:

1. Adult left scapula and rib, sternal body, two cervical vertebrae, right tarsal, left tarsal - individual IX.

Pit 31:

1. Older child sacrum fragment, eight innominate fragments - individual XXXVI.

Pit 32:

1. Child vertebral extremity of left rib.
2. Adult manubrium, left radius and ulna, left humerus fragment (distal end), two lumbar vertebrae, two vertebrae fragments, four long bone fragments, rib fragment, clavicle(?) fragment, left metatarsal II, hand phalange, foot phalange - individual XXXIX.

Pit 34:

1. Young child left ilium and femur (missing distal end), right temporal and two skull fragments, left rib, thoracic vertebral arch - soft tissue; individual XLII.
2. Piece of skin - 2.7 cm. X 2.5 cm.
3. Adult distal end of right humerus, right radius, thoracic vertebra - individual XL.
4. Adult left clavicle, three left ribs and fragment, two right ribs and two fragments (one rib and one fragment still articulated) - soft tissue.
5. Adult male right tibia, left fibula (missing distal end), left innominate, left clavicle, right humerus (missing proximal end), thoracic vertebra, right rib fragment, rib fragment - stature of 160.0 cm. (63.0 inches), based on right tibia; individual XXXIX.

Pit 35:

1. Adult left rib - individual XXXIX.

Pit 36:

1. Adult left tibia.
2. Adult male distal half of right femur - individual XLI.

Pit 37:

1. Adult vertebral fragment.

Pit 38:

1. Adult male proximal half of right femur - individual XLI.

Pit 39:

1. Adult left metacarpal II and hand phalange, long bone(?) fragment - individual XL.

Pit 40:

1. Six child or infant skull fragments.
2. Two adult skull fragments and two tooth fragments - osteoporosis.

Pit 41:

1. Adult right clavicle and innominate fragment.

Pit 43:

1. Three tiny fragments.

NA12641: Listing by individuals

Bones were not included under an individual number unless it was fairly certain they were from the same burial; therefore, many ribs, hand and foot bones, etc., were not assigned numbers, although most of this material undoubtedly belongs to individuals in the following list. Individual numbers were not assigned to minor or solitary bones, or to unidentifiable fragments. In several cases, one individual may have more than one individual number; for example, the feet from Individual IV probably belong to one of the other individual numbers, but because they couldn't be matched with any certainty, they were given a separate designation. Also, if bone from two locations could be matched, a number was assigned, even if it was only two ribs or phalanges.

Individual I

Adult.

All bone burned.

Two maxillary fragments, six skull fragments, cervical vertebra fragment, four vertebrae fragments, clavicle fragment, four innominate fragments, nine rib fragments, femur fragment, leg bone fragment, 10 humerus fragments, 12 arm bone fragments, long bone fragment, two carpal fragments, three metacarpal fragments, two left tarsals, two tarsal fragments, metatarsal fragment.

Individual II

Adult male.

Left rib, two right rib fragments, three rib fragments, proximal half of left humerus, right radius, hand phalange, foot phalange.

Individual III

Adult male, in late 30's or 40's.

Stature = 159.5 cm. (62.8 inches).

All bone, except skull, originally articulated.

Osteoporosis; T11 slightly lipped; costal cartilages of both first ribs ossified; healed longitudinal fracture of left metacarpal III.

Skull (missing face) and fragment, three cervical vertebrae, thoracic vertebrae, lumbar vertebrae, sacrum, right scapula and fragment, clavicles, left innominate and fragment, right innominate (broken) and two fragments, left ribs, nine right ribs, eight rib fragments, right patella, femora, tibiae, fibulae, humeri, ulnae, radii, three left carpals, right carpals, two left metacarpals, four right metacarpals, nine right hand phalanges, all tarsals and metatarsals, three left foot phalanges, two right foot phalanges.

Individual IV

Adult.

Both articulated feet; missing 10 left phalanges and one right phalange.

Individual V

Adult female, 18 to 25 years.

Stature = 152.4 cm. (60.0 inches).

Many of the vertebrae articulated.

Osteophytic spur on thoracic vertebra.

Skull(?) fragment, four cervical vertebrae, nine thoracic vertebrae, right scapula fragment, left innominate (pubis broken off), left rib and three fragments, two right rib fragments, rib fragment, left patella, femora (left broken), left tibia, left fibula, left humerus, left ulna.

Individual VI

Adult male.

All bone badly dessicated and fragmented.

Thoracic vertebra, vertebra fragment, clavicle fragment, left innominate and four fragments, right rib fragment, six rib fragments, left tibia (fragmented), left ulna, distal half of right ulna, three long bone fragments.

Individual VII

Adult.

Severe osteophytic growth on metacarpal I.

Two left metacarpals and hand phalange.

Individual VIII

Adult male.

Stature = 161.4 cm. (63.5 inches).

Osteophytic growth on right patella.

Six thoracic vertebrae fragments, two sacral fragments, clavicles, left innominate fragment, four right innominate fragments, left rib and fragment, two right ribs and fragment, right patella, left femur, right femur and two fragments, left tibia, left fibula, distal half of left humerus, left radius.

Individual IX

Adult male, 31 to 35 years.

Five cervical vertebrae, sternal body, scapulae, right clavicle, innominates, three left ribs and two fragments, two right ribs, rib fragment, right patella, left tibia, distal end of right tibia, right ulna, hand phalange, two left tarsals, two right tarsals, right metatarsal, foot phalange.

Individual X

Adult female.

Stature = 152.4 cm. (60.0 inches).

Lesion of left rib.

Two thoracic vertebrae, right scapula, left rib fragment, right femur, right tibia, left humerus and fragment, left ulna.

Individual XI

Young adult male.

Right maxillary third molar agenesis.

Right maxillary (M1 and M2 in place), left mastoid area, 11 skull fragments, thoracic vertebra fragment, lumbar vertebra fragment, vertebra fragment, innominate(?) fragment, two left rib fragments, right rib fragment, rib fragment, left tibia and 12 fragments, right radius, 31 long bone fragments, left carpal, metacarpal fragment, metacarpal or metatarsal fragment, two hand or foot bone fragments.

Individual XII

Child, about five years.

Right scapula, radii.

Individual XIII

Adult.

Thoracic vertebra and fragment, proximal end of left femur and six fragments, left metacarpal, right metatarsal.

Individual XIV

Adult.

Manubrium, right scapula, right clavicle, two left ribs and fragment, right rib, two right carpals, three right metacarpals, two hand phalanges.

Individual XV

Older child.

Right pubis and ischium, left rib fragment, femur head epiphysis, left tarsal.

Individual XVI

Old adult male.

Abcesses of mandibular I1's, left I2, C and PM1.
Mandible (missing most of right side) with right I1 and I2 in place, maxillary right I2.

Individual XVII

Adult.

Two thoracic vertebrae, two scapula fragments, left rib, 10 rib fragments.

Individual XVIII

Adult.

Maxillary (broken) with left I2-M1 in place, skull fragment, rib fragment, three femur fragments, five arm bone fragments.

Individual XIX

Adult.

Left tarsal, left metatarsal fragment, foot phalange.

Individual XX

Adult female.

Stature = 156.7 cm. (61.7 inches).
Lumbar vertebra, left innominate (broken), distal end of left femur, proximal half of right femur, tibiae, right fibula, right metacarpal, seven hand phalanges.

Individual XXI

Fetus.

Three skull fragments, three long bone fragments.

Individual XXII

Adult female.

Stature = 149.7 cm. (58.9 inches).
Three cervical vertebrae, scapulae, left clavicle, four left ribs, six right ribs, three rib fragments, femora, tibiae, fibulae, humeri, left radius, ulnae, right metacarpal, three right tarsals, right metatarsal.

Individual XXIII

Adult female.

Left innominate, left rib fragment, three humerus fragments, two long bone fragments.

Individual XXIV

Adult male.

Left femur, right tibia, left fibula, hand phalange, foot phalange.

Individual XXV

Fetus.

Two skull fragments, vertebral body, right ilium, left rib, femora, left tibia.

Individual XVI

Adolescent.

Thoracic vertebra, iliac blade epiphysis, left femur, distal epiphyses of femora, proximal and distal epiphyses of left tibia.

Individual XVII

Child.

Three right ribs and fragment.

Individual XXVIII

Adult.

Exostotic growth on thoracic vertebra.
Cervical vertebra, three thoracic vertebrae.

Individual XXIX

Adult.

Rib fragment, right femur, tibia fragment, fibula fragment, long bone fragment.

Individual XXX

Adult.

Two thoracic vertebrae, lumbar vertebra.

Individual XXXI

Child, about eight years.

Possible healed mid-shaft fracture of left(?) fibula.
Two thoracic vertebrae, four lumbar vertebrae, two sacral vertebrae, left ilium and ischium, left(?) fibula shaft, right humerus.

Individual XXXII

Infant, three to four years.

Spongy hyperostosis.

Right half of frontal, right parietal, right scapula and fragment, four left ribs, right ulna.

Individual XXXIII

Adult male.

Unilateral spondylolysis of lumbar vertebra.

Two cervical vertebrae, two thoracic vertebrae, lumbar vertebra, left scapula and fragment, six left ribs and four fragments, two right rib fragments, left femur shaft, right femur fragment, right tibia, humeri, proximal end of right radius, proximal end of left ulna, right metacarpal, hand phalange, right tarsal, left metatarsal, foot phalange.

Individual XXXIV

Adult.

Slight lipping of lumbar vertebrae.

Two lumbar vertebrae and fragment, right patella.

Individual XXXV

Adult.

Healed fracture of distal shaft of right ulna.

Skull(?) fragment, four thoracic vertebrae, scapulae and four fragments, three right ribs, left fibula, distal half of left humerus, right radius, ulnae, three long bone fragments.

Individual XXXVI

Older child, about 10 years.

Sacrum fragment, eight innominate fragments, right tibia shaft, right humerus, right metacarpal, left metatarsal.

Individual XXXVII

Adult.

Cervical vertebra, rib fragment, right radius, right metatarsal.

Individual XXXVIII

Young adult female.

Stature = 153.2 cm. (60.3 inches).

Most bones still articulated.

Five skull fragments, thoracic vertebrae, lumbar vertebrae, sacrum, coccyx, sternum, left scapula and six fragments, left clavicle, innominates, left ribs, four right ribs and seven fragments, right patella, femora, tibiae, fibulae, left humerus, two long bone fragments, two left tarsals, complete right foot.

Individual XXXIX

Adult male.

Stature = 160.0 cm. (63.0 inches).

Thoracic vertebra, two lumbar vertebrae, two vertebrae fragments, manubrium, clavicles and fragment(?), left innominate, left rib, right rib fragment, two rib fragments, right tibia, left fibula, left humerus fragment, right humerus, left radius, left ulna, four long bone fragments, hand phalange, left metatarsal, foot phalange.

Individual XL

Adult.

Thoracic vertebra, distal end of right humerus, right radius, long bone(?) fragment, left metacarpal, hand phalange.

Individual XLI

Adult male.

Right femur (broken).

Individual XLII

Young child.

Right temporal, two skull fragments, thoracic vertebral arch, left ilium, left rib, left femur.

Bone not assigned an individual number.

In addition to the 42 individuals listed above, this site also contained the following bone (grouped by ages) which could not be assigned to an individual, although most of it probably does belong in the above listing. At least 14 distinct individuals are represented by this bone.

Fetus

Right maxillary fragment, skull fragment, left femur.

Infant

Left humerus, right radius.

Child

Six skull fragments, left ilium, right ilium, left rib fragment, right rib fragment, six rib fragments, tibia fragment, proximal epiphysis of radius, right metacarpal, hand phalange.

Adult Male

Left temporo-mastoid area, left innominate.

Adult Female

Sacrum, right innominate and fragment (incipient sacro-iliac fusion).

Indeterminate Adult

Left mastoid area, nine skull fragments, mandibular left M2(?) and M3, two tooth fragments, six thoracic vertebrae, five lumbar vertebrae and fragment (slight lipping on one;

Indeterminate Adult (cont'd):

incipient sacralization on one), vertebra fragment, sacrum(?) fragment, three left scapulae and six fragments, right scapula and two fragments, scapula fragment, left clavicle, right clavicle, two clavicle fragments, eight left ribs and fragment, seven right ribs and six fragments, 15 rib fragments, left patella, left femur and fragment, left tibia, tibia fragment, left fibula shaft (broken) and two fragments, right humerus, humerus fragment, left radius (small mid-shaft lesion), left ulna, three long bone fragments, two left carpals, two right metacarpals and fragment, three hand phalanges, two left tarsals, left metatarsal, foot phalange.

NAL2648: SUMMARY

I. Distinct Individuals

Infant	1
Adolescent	1
Adolescent or adult	1
Indeterminate adult	2
<u>TOTAL</u>	= 5

II. -----

III. Pathologies

Individual IV: Osteophytic growth on right patella.

NAL2648: Listing by location numbers

Under each location, the separate numbers indicate distinct individuals; for example, an infant and an adolescent are represented by the collection made at Location 22.

Location 16:

1. Adult tibia shaft fragment (broken) - individual I.

Location 22:

1. Infant right rib - individual II.
2. Adolescent left rib fragment - individual III.

Location 31:

1. Adult right tarsal - soft tissue; individual IV.

Location 37:

1. Three adolescent or adult skull fragments - individual V.

Location 39:

1. Adult right patella - soft tissue; osteophytic growth on proximal border; individual IV.

Location 43:

1. Adult right metatarsals I and II - individual IV.

NA12648: Listing by individuals

Individual I

Adult.

Tibia shaft fragment (broken).

Individual II

Infant.

Right rib.

Individual III

Adolescent.

Left rib fragment.

Individual IV

Adult.

Osteophytic growth on right patella.

Right patella, right tarsal, two right metatarsals.

Individual V

Adolescent or adult.

Three skull fragments.

NAL2649: SUMMARY

I. Distinct Individuals

Fetus	1
Indeterminate adult	1
<u>TOTAL</u>	= 2

II. -----

III. Pathologies

None

NAL2649: Listing by location numbers

Under each location, the separate numbers indicate distinct individuals; for example, a fetus and an adult are represented by the collection made at Location 16.

Location 12:

1. Adult left metatarsal II fragment - individual I.

Location 16:

1. Fetus right femur - individual II.
2. Adult thoracic vertebra - individual I.

Location 17:

1. Adult rib fragment - individual I.

NAL2649: Listing by individuals

Individual I

Adult.

Thoracic vertebra, rib fragment, left metatarsal fragment.

Individual II

Fetus.

Right femur.

NAL2650: SUMMARY

I. Distinct Individuals

Fetus	1
Infant	2
Child	5
Adolescent	1
Adult male	2
Adult female	3
Indeterminate adult	7

TOTAL = 21

II. Bone from at least seven individuals (one infant, one child, five indeterminate adults) not assigned an individual number.

III. Pathologies

Individual I: Periostitis on fibula shaft fragment.

Individual II: Osteophytic spur on proximal end of left fibula.

Individual VI: Osteophytosis of right metacarpal, foot phalange and right scapula fragment; eburnated coracoid process.

Individual XVI: Healing perforated lesion and exostotic growth on mandible.

Miscellaneous
Indeterminate

Adult: Large interproximal neck carie on maxillary left M2; carious tooth root.

NAL2650: Listing by location numbers

Under each location, the separate numbers indicate distinct individuals; for example, an adult and an adolescent are represented by the collection made at Location 7.

Location 3:

1. Adult right rib fragment - individual I.

Location 4:

1. Adult proximal half of left ulna - soft tissue; individual I.

Location 5:

1. Adult left metatarsal I - individual I.

Location 7:

1. Adult right rib - individual II.
2. Adolescent left metatarsal III - individual III.

Location 8:

1. Adolescent thoracic vertebra - individual III.
2. Child hand phalange - individual IV.
3. Adult maxillary right canine, tooth root (cariou).

Location 9:

1. Adult long bone fragment - burned; individual V.
2. Adult right metacarpal II - severe osteophytic proliferation on proximal end; individual VI.
3. Adult canine root.

Location 10:

1. Adult left rib fragment - individual II.
2. Child thoracic vertebra - individual VII.

Location 11:

1. Adult left rib fragment - individual I.

Location 12:

1. Adolescent thoracic vertebra, right rib - individual III.
2. Child skull fragment.

Location 13:

1. Adult left rib fragment - individual I.
2. Adolescent thoracic vertebra - individual III.
3. Adult thoracic vertebra - individual VIII.

Location 14:

1. Adolescent cervical vertebra - individual III.
2. Adult foot phalange.

Location 15:

1. Adult right rib - individual I.
2. Child left rib and fragment - individual IV.
3. Adolescent right rib (broken) - individual III.
4. Adult rib fragment.

Location 16:

1. Child right tibia shaft - individual IX.
2. Adult maxillary right canine.

Location 19:

1. Three adult femur fragments - burned; individual V.
2. Adult humerus fragment, femur fragment, left fibula shaft, two left scapula fragments, right vertebral end of rib, rib fragment - soft tissue; individual I.
3. Adult female(?) right fibula shaft, right patella (soft tissue), long bone fragment, four left rib fragments, rib fragment - individual II.
4. Child, about seven years, left ulna and metacarpal II - individual IV,
5. Child, about six years, left radius and right zygomatic - individual VII.

Location 20:

1. Adult rib fragment - individual II.
2. Fetus right femur - individual X.
3. Child thoracic vertebra - individual IV.
4. Adolescent iliac crest epiphysis - individual III.

Location 21:

1. Adult maxillary left PM2.

Location 22:

1. Adult fibula shaft fragment - small area of periostitis; individual I.
2. Adult left rib fragment - individual II.
3. Child thoracic vertebra - individual VII.
4. Adolescent left rib fragment, right rib fragment - individual III.

Location 23:

1. Infant, about two years, right maxillary - individual XI.
2. Child left rib, left ulna, left femur - individual VII.
3. Child right femur - individual IX.
4. Older adolescent right calcaneus - individual III.
5. Adult male left rib, rib fragment, left clavicle, left radius, right fibula shaft fragment, left metacarpal II - soft tissue; individual I.

Location 24:

1. Adult left fibula shaft (broken), left rib fragment - soft tissue; osteophytic spur on proximal end of left fibula; individual II.
2. Child right rib - individual VII.

Location 25:

1. Adult vertebral end of left rib - individual I.

Location 27:

1. Child right rib and fragment - individual VII.

Location 28:

1. Three adult vertebrae fragments.
2. Child humerus fragment - individual IX.
3. Adult fibula fragment - individual I.

Location 29:

1. Adult rib fragment - individual I.

Location 30:

1. Adult left calcaneus fragment - burned; individual V.
2. Adult left rib, rib fragment - soft tissue; individual I.
3. Adult right rib (broken), rib fragment, fibula fragment, right metacarpal III - individual II.

Location 31:

1. Child thoracic vertebra - individual VII.
2. Adult skull fragment, thoracic vertebra fragment, vertebra fragment, femur fragment, two humerus fragments, long bone fragment, hand phalange - all burned; individual V.

Location 32:

1. Child hand phalange - individual IV.
2. Adult 20+ long bone fragments, rib fragment, two hand phalange fragments, two lumbar vertebrae fragments, two vertebrae fragments, coccyx, tarsal fragment - all burned; individual V.

Location 35:

1. Adult fibula fragment, long bone fragment - burned; individual V.

Location 36:

1. Three adult long bone fragments - burned; individual V.

Location 37:

1. Child right metacarpal IV - individual IV.
2. Adult vertebra fragment, three rib fragments, skull(?) fragment, three arm bone fragments, femur fragment, fibula fragment, seven long bone fragments - all burned; individual V.

Location 38:

1. Adult left rib (broken) - soft tissue; individual I.
2. Adult foot phalange - osteophytic proliferation; individual VI.
3. Child(?) rib fragment.
4. Adult right clavicle fragment, scapula fragment, five skull fragments, innominate fragment, sacrum(?) fragment, two vertebrae fragments, femur fragment, three fibula fragments, leg bone fragment, five long bone fragments, seven rib fragments, right talus fragment, two metatarsal fragments - all burned; individual V.

Location 39:

1. Child right rib - individual IX.

Location 40:

1. Child left rib and two fragments - individual VII.

Location 42:

1. Adult left metacarpal III - individual II.
2. Adult long bone fragment.

Location 43:

1. Adult left rib - individual I.

Location 46:

1. Adult fibula fragment - burned; individual V.
2. Adolescent right scapula, right rib, thoracic vertebra - individual III.
3. Adult proximal end of left femur.
4. Adult male proximal half of right femur shaft - individual XII.
5. Adult female left innominate, right scapula fragment, right tibia shaft fragment, two left ribs and fragment, two right ribs, three rib fragments - individual XIII.
6. Adult female left femur - stature of 142.5 cm. (56.1 inches), based on left femur; individual II.
7. Adult male right tibia, vertebral extremity of left rib and fragment, cervical vertebra, thoracic vertebra, lumbar vertebra, right talus - soft tissue; stature of 162.8 cm. (64.1 inches), based on right tibia; individual I.
8. Child right rib - individual IX.

Location 47:

1. Adult long bone fragment.

Location 48:

1. Three adult left ribs (two still articulated) - soft tissue; individual XIV.

Location 49:

1. Adult tibia fragment - burned; individual V.
2. Two adult rib fragments - individual XIII.

Location 55:

1. Older child occipital - individual XV.

Location 57:

1. Adult innominate fragment.

Location 59:

1. Adult long bone fragment.
2. Infant right rib.
3. Adult female right side of mandible - all teeth lost post-mortem; healing perforating lesion on buccal side of M1 roots; exostotic growth on lingual side of PM2-M1 roots; individual XVI.

Location 60:

1. Older child or adolescent skull fragment - burned; individual XVII.

Location 65:

1. Adult long bone fragment - individual XII.

Location 66:

1. Adult thoracic vertebra - soft tissue.

Location 72:

1. Adult left scapula and right rib - individual XVIII.

Location 74:

1. Adult thoracic vertebra.
2. Adult thoracic vertebra - individual XVIII.

Location 75:

1. Adult left mastoid area, left scapula, left vertebral extremity of rib - individual XIX.
2. Child right ilium - individual IX.

Location 77:

1. Child, about six years, left femur - individual IX.
2. Adult sternal body, distal end of right tibia - soft tissue; individual XVIII.

Location 78:

1. Adult maxillary left M2 - large interproximal neck carie.

Location 79:

1. Adult right metatarsal III fragment - burned; individual V.
2. Infant first sacral segment - individual XX.
3. Child atlas - individual IX.

Location 80:

1. Adult female left humerus - individual II.
2. Infant, about three years, right ulna - individual XX.
3. Two child left ribs - individual IX.
4. Adult axis, two left ribs, right rib, left calcaneus - soft tissue; individual XVIII.
5. Adult long bone fragment.
6. Adult maxillary right(?) PM2.

Location 81:

1. Adult sternal fragment - partially burned; individual V.
2. Child rib fragment - individual IX.

Location 82:

1. Adult vertebral extremity of left rib - individual XVIII.
2. Child right rib - individual IX.
3. Adolescent, 17 to 19 years, right radius (missing proximal end), left clavicle, left rib, rib fragment - individual III.
4. Adult proximal end of left femur shaft.
5. Adult right scapula fragment - marked lipping of glenoid cavity; eburnated and lipped coracoid process (caused by clavicle abrasion?); individual VI.

Location 88:

1. Adult long bone fragment - burned; individual V.

Location 89:

1. Adolescent right humerus - individual III.
2. Adult right innominate fragment - burned; individual V.
3. Eight child humerus fragments - burned; individual XVII.
4. Adult right ulna (missing distal end), lumbar vertebra, fragment of each fibula shaft - soft tissue; individual VIII.

Location 90:

1. Adult thoracic vertebra - individual VIII.
2. Adult right rib.

Location 92:

1. Child right proximal tibia epiphysis - individual IX.

Location 96:

1. Infant thoracic vertebra arch - individual XX.
2. Adult vertebral end of left rib - individual VIII.
3. Child left humerus, axis, left rib - individual IX.

Location 102:

1. Adult left mastoid area - individual XXI.

Location 105:

1. Adult male distal end of right femur - individual XII.

Location 106:

1. Adult thoracic vertebra - individual XVI.

Location 107:

1. Adult left tibia shaft fragment - individual I.

Location 110:

1. Older child skull fragment - individual XV.

NA12650: Listing by individuals

Bones were not included under an individual number unless it was fairly certain they were from the same burial; therefore, several teeth, long bone fragments, etc., were not assigned numbers, although most of this material undoubtedly belongs to individuals in the following list. Individual numbers were not assigned to minor solitary bones or to unidentifiable fragments. It is possible that one individual may have more than one individual number; for example, the ribs from Individual XIV probably belong to one of the other individual numbers, but because they couldn't be matched with any certainty, they were given a separate designation.

Individual I

Adult male.

Stature = 162.8 cm. (64.1 inches).

Soft tissue on most bones.

Small area of periostitis on fibula shaft fragment.

Cervical vertebra, thoracic vertebra, lumbar vertebra, two left scapula fragments, left clavicle, four left ribs and five fragments, right rib and two fragments, four rib fragments, femur fragment, left tibia shaft fragment, right tibia, left fibula shaft, right fibula shaft fragment, two fibula fragments, humerus fragment, left radius, left metacarpal, right tarsal, left metatarsal.

Individual II

Adult female.

Stature = 142.5 cm. (56.1 inches).

Soft tissue on most bones.

Osteophytic spur on proximal end of left fibula.

Seven left rib fragments, two right ribs, three rib fragments, right patella, left femur, left fibula shaft, right fibula shaft, fibula fragment, left humerus, long bone fragment, left metacarpal, right metacarpal.

Individual III

Adolescent, 17 to 19 years.

Cervical vertebra, four thoracic vertebrae, right scapula, left clavicle, iliac blade epiphysis, left rib and fragment, three right ribs and fragment, rib fragment, right humerus, right radius, right tarsal, left metatarsal.

Individual IV

Child, about seven years.

Thoracic vertebra, left rib and fragment, left metacarpal, right metacarpal, two hand phalanges.

Individual V

Adult.

All bone burned.

Seven skull fragments, thoracic vertebra fragment, two lumbar vertebrae fragments, six vertebrae fragments, sacrum(?) fragment, coccyx, sternum fragment, scapula fragment, right clavicle fragment, right innominate fragment, innominate fragment, 11 rib fragments, six femur fragments, tibia fragment, six fibula fragments, leg bone fragment, two humerus fragments, three arm bone fragments, 40+ long bone fragments, hand phalange, two hand phalange fragments, left tarsal fragment, right tarsal fragment, tarsal fragment, right metatarsal fragment, two metatarsal fragments.

Individual VI

Adult.

Osteophytosis of proximal end of right metacarpal II, foot phalange and right scapula fragment; eburnated coracoid process.
Right scapula fragment, right metacarpal, foot phalange.

Individual VII

Child, about six years.

Right zygomatic, three thoracic vertebrae, two left ribs and two fragments, two right ribs and fragment, left femur, left radius, left ulna.

Individual VIII

Adult.

Two thoracic vertebrae, lumbar vertebra, left rib fragment, left fibula shaft fragment, right fibula shaft fragment, right ulna.

Individual IX

Child, about six years.

Two cervical vertebrae, right ilium, four left ribs, two right ribs, rib fragment, femora, proximal epiphysis and shaft of right tibia, left humerus, humerus fragment.

Individual X

Fetus.

Right femur.

Individual XI

Infant, about two years.

Right maxillary.

Individual XII

Adult male.

Proximal half of shaft and distal end of right femur,
leg bone fragment.

Individual XIII

Adult female.

Right scapula fragment, left innominate, two left ribs
and fragment, two right ribs, five rib fragments, right
tibia shaft fragment.

Individual XIV

Adult.

Soft tissue.

Three left ribs (two still articulated).

Individual XV

Older child.

Occipital, skull fragment.

Individual XVI

Adult female.

Healing perforated lesion and exostotic growth on mandible.
Right side of mandible, thoracic vertebra.

Individual XVII

Child.

All bone burned.

Skull fragment, eight humerus fragments.

Individual XVIII

Adult.

Soft tissue.

Cervical vertebra, thoracic vertebra, sternal body, left
scapula, two left ribs and fragment, two right ribs,
distal end of right tibia, left tarsal.

Individual XIX

Adult.

Left mastoid area, left scapula, left rib fragment.

Individual XX

Infant, about three years.

Thoracic vertebra arch, first sacral segment, right ulna.

Individual XXI

Adult.

Left mastoid area.

Bone not assigned an individual number.

In addition to the 21 individuals listed above, this site also contained the following bone (grouped by ages) which could not be assigned to an individual, although most of it probably does belong in the above listing. At least seven distinct individuals are represented by this bone.

Infant

Right rib.

Child

Skull fragment, rib fragment.

Adult

Two maxillary right Cs, maxillary left PM2, maxillary left M2 (large interproximal neck carie), maxillary right(?) PM2, C root, tooth root (cariou), two thoracic vertebrae, three vertebrae fragments, innominate fragment, right rib, rib fragment, proximal end of left femur, proximal shaft of left femur, four long bone fragments, foot phalange.

NAL2651: SUMMARY

I. Distinct Individuals

Child or adolescent	1
Adult	3

TOTAL = 4

II. -----

III. Pathologies

Individual III: Healed mid-shaft fracture of left humerus.

NAL2651: Listing by location numbers

Location 37:

1. Adult thoracic vertebra - individual I.

Location 41:

1. Adult right radius, right scapula and three fragments, left tarsal, left metatarsal III - individual I.

Location 51:

1. Adult distal end of left femur, long bone fragment - individual II.

Location 127:

1. Adult left humerus shaft - healed mid-shaft fracture; individual III.

Location 149:

1. Adult left metatarsal I, left scapula fragment, two long bone fragments - individual I.

Location 175:

1. Child or adolescent left rib - individual IV.

NA12651: Listing by individuals

Individual I

Adult.

Thoracic vertebra, left scapula fragment, right scapula and three fragments, right radius, two long bone fragments, left tarsal, two left metatarsals.

Individual II

Adult.

Distal end of left femur, long bone fragment.

Individual III

Adult.

Healed mid-shaft fracture of left humerus.
Left humerus shaft.

Individual IV

Child or adolescent.

Left rib.

NAL2652: SUMMARY

I. Distinct Individuals

Infant	2
Child	2
Adolescent	1
Adult male	2
Indeterminate adult	2

TOTAL = 9

II. Bone from at least three individuals (one infant or child, two adults) not assigned an individual number.

III. Pathologies

Individual I: Healing fracture of left rib.

Individual IV: Badly impacted maxillary tooth (premolar?).

NAL2652: Listing by location numbers

Under each location, the separate numbers indicate distinct individuals; for example, an older child and an adult female are represented by the collection made at Location 54.

Location 8:

1. Infant, about six months, left tibia - individual I.

Location 16:

1. Infant, about one year, left ilium, left tibia, thoracic vertebra arch - individual II.
2. Adult(?) rib fragment.

Location 22:

1. Two infant or child rib fragments.

Location 52:

1. Child left rib - individual III.

Location 54:

1. Older child right rib, lumbar vertebra - individual IV.
2. Adult female right innominate fragment - partially burned; individual V.

Location 56:

1. Infant left rib - healing fracture of sternal end; individual I.

Location 60:

1. Adult hand phalange.

Location 61:

1. Child, four to five years, right fibula, right femur distal epiphysis - individual III.

Location 62:

1. Adult maxillo-zygomatic fragment with badly impacted tooth (premolar?), innominate fragment, right metacarpal I - individual VI.
2. Old adult left mandibular ramus, right innominate fragment, innominate fragment, three cervical vertebrae and fragment, fragment of distal end of right humerus, two left rib fragments, four rib fragments - all bone partially burned; individual V.
3. Young adult innominate fragment - burned; individual VIII.

Location 66:

1. Infant right tibia shaft fragment - individual II.
2. Adult left scapula fragment - partially burned; individual V.

Location 68:

1. Adult right innominate fragment, thoracic vertebral arch - partially burned; individual V.
2. Adult long bone fragment.

Location 70:

1. Adolescent right tibia shaft fragment - individual VII.
2. Three adult long bone fragments.

Location 71:

1. Adult vertebral end of right rib, rib fragment - partially burned; individual V.
2. Young adult rib fragment, tibia(?) fragment - burned; individual VIII.

Location 74:

1. Young adult, over 19 years, distal end of right radius, rib fragment, long bone(?) fragment - burned; individual VIII.

Location 75:

1. Two child skull fragments - individual III.
2. Adult innominate fragment - partially burned; individual V.
3. Young adult, 20 to 21 years, left maxillary fragment (canine root in place), right pubis, two skull fragments, tibia fragment, arm bone fragment, leg bone fragment, right calcaneus fragment, nine rib fragments, long bone fragment - all bone burned; individual VIII.

Location 76:

1. Adult right zygomatic fragment, left rib fragment, right rib fragment - individual IX.
2. Young adult left clavicle fragment, scapula(?) fragment, humerus head fragment, two innominate fragments, two skull fragments, two arm bone fragments, long bone fragment, right rib fragment, eight rib fragments - all bone burned; individual VIII.

Location 77:

1. Young adult arm bone fragment - partially burned; individual VIII.
2. Three adult skull fragments, right ulna proximal shaft fragment, three arm bone fragments, two rib fragments - all bone partially burned; individual V.
3. Adult long bone fragment.

Location 86:

1. Two adult right innominate fragments - partially burned; individual V.

Location 92:

1. Adult long bone fragment.

NA12652: Listing by individuals

Individual I

Infant, about six months.
Healing fracture of left rib.
Left rib, left tibia.

Individual II

Infant, about one year.
Thoracic vertebra arch, left ilium, left tibia, right tibia shaft fragment.

Individual III

Child, four to five years.
Two skull fragments, left rib, right femur distal epiphysis, right fibula.

Individual IV

Older child.
Lumbar vertebra, right rib.

Individual V

Old adult female.

All bone partially burned.

Three skull fragments, mandibular left ramus, three cervical vertebrae and fragment, thoracic vertebra fragment, left scapula fragment, five right innominate fragments, two innominate fragments, two left rib fragments, right rib fragment, seven rib fragments, right humerus distal end fragment, right ulna proximal shaft fragment, three arm bone fragments.

Individual VI

Adult.

Badly impacted maxillary tooth (premolar?).

Maxillo-zygomatic fragment, innominate fragment, right metacarpal.

Individual VII

Adolescent.

Right tibia shaft fragment.

Individual VIII

Young adult male, 20 to 21 years.

All bone burned.

Left maxillary fragment, four skull fragments, left maxillary canine root, scapula fragment, left clavicle fragment, right innominate fragment, three innominate fragments, right rib fragment, 19 rib fragments, two tibia fragments, leg bone fragment, humerus head fragment, right radius distal end, four arm bone fragments, three long bone fragments, right tarsal fragment.

Individual IX

Adult.

Right zygomatic fragment, left rib fragment, right rib fragment.

Bone not assigned an individual number.

In addition to the nine individuals listed above, this site also contained the following bone (grouped by ages) which could not be assigned to an individual, although most of it probably does belong in the above listing. At least three distinct individuals are represented by this bone.

Infant or Child

Two rib fragments.

Adult

Rib fragment, six long bone fragments, hand phalange.

NAL2654: SUMMARY

I. Distinct Individuals

Fetus	1
Infant	1
Child	1
Adolescent	3
Adult male	1
Adult female	2
Indeterminate adult	1

TOTAL = 10

II. Bone from at least three individuals (one young adult, two adults) not assigned an individual number.

III. Pathologies

Individual I: Lipping of thoracic vertebrae; lipping and some ossified ligaments on lumbar vertebrae; degeneration of right articular facets on two cervical vertebrae.

Individual II: Periostitis on distal end of right fibula; spina bifida.

Individual IV: Spina bifida.

Individual X: Exostotic growth on proximal end of left metatarsal.

NAL2654: Listing by location numbers

Under each location, the separate numbers indicate distinct individuals; for example, an adult and a child are represented by the collection made at Location 6.

Location 1:

1. Adult right radius - individual I.

Location 5:

1. Adult right scapula and fragment - soft tissue; individual I.

Location 6:

1. Adult skull fragment - individual I.

2. Five child skull fragments - individual II.

Location 7:

1. Adult proximal half of left humerus - soft tissue; individual I.

Location 8:

1. Fetus left half of cervical vertebra arch - individual III.

Location 9:

1. Adult left rib, left femur head with small innominate fragments still articulated, portion of articulated left foot (consisting of three tarsals, metatarsals II and III, phalange), articulated metatarsal IV and fragment of phalange - soft tissue; individual I.

Location 10:

NOTE: All of the bone under listing number 1 is from the same individual (Individual I). The lower case letters are inventories by bag. All of the bones have soft tissue attached. The burial is a middle-aged adult male (aged by vertebral lipping); more precise aging is not possible, as no teeth are present, and the pubic symphysis is still articulated. The individual was about 158.8 cm. (62.5 inches) tall during life (based on right femur).

1. Individual I:
 - a. Articulated vertebral column, consisting of two cervical vertebrae, thoracic vertebrae (lipped), lumbar vertebrae (lipped and some ossified ligaments), fragments of both innominates, sacrum, three right ribs, nine right rib fragments, eight left rib fragments; loose - three right ribs (all missing vertebral ends), right rib fragment, four rib fragments.
 - b. Distal end of right fibula, articulated right femur and tibia.
 - c. Articulated left femur and proximal half of tibia, articulated distal half of left tibia, distal end of fibula and four tarsals.
 - d. Right humerus, left innominate with fragment of right pubis still articulated.
 - e. Distal half of left humerus, proximal half of right fibula, proximal end of left fibula and two shaft fragments, two cervical vertebrae (articulated) with degeneration of right articular facets, articulated right talus and calcaneus, articulated five right tarsals and metatarsals II-IV (missing distal ends), four left rib fragments, right rib fragment, two rib fragments.
2. Child, 12 to 13 years, right fibula - periostitis on distal end; individual II.

Location 11:

1. Adult left ulna, right rib fragment, two rib fragments - soft tissue; individual I.
2. Child skull fragment - individual II.

Location 13:

1. Adult right rib - individual I.
2. Fetus or infant right rib (broken) - individual III.
3. Adult arm bone fragment.

Location 16:

1. Adolescent right innominate fragment, left humerus shaft, right rib fragment, leg bone(?) fragment - individual IV.

Location 17:

1. Adult right rib fragment, rib fragment.

Location 18:

1. Adolescent proximal end of left tibia, left rib fragment, two humerus fragments - individual IV.

Location 19:

1. Adolescent right humerus head epiphysis, right rib - individual IV.
2. Young adult right metatarsals I-III (I with two articulated sesamoids) - soft tissue.

Location 25:

1. Adolescent sacrum - spina bifida; individual IV.
2. Child, 12 to 13 years, left ilium, right radius, left ulna - individual II.
3. Adult right femur, right ulna, left tibia (missing proximal end) with distal end of fibula still articulated, articulated left foot (missing all phalanges II-V and terminal phalange I), articulated right tibia, fibula and foot (tibia and fibula missing proximal ends; foot missing both phalanges I and medial and terminal phalanges III-V) - soft tissue; individual V.

Location 26:

1. Adult foot phalange - individual V.
2. Fetus left rib, right half of thoracic vertebra arch - individual III.

Location 27:

1. Fetus right rib fragment, two rib fragments - individual III.
2. Two adult rib fragments.

Location 31:

1. Adult right humerus - individual V.
2. Adolescent left femur - soft tissue; individual IV.
3. Adolescent, over 14 years, left ulna - individual VI.
4. Adult female left innominate, left humerus, left scapula fragment, right rib, two rib fragments - individual VII.

Location 33:

1. Two adult rib fragments.
2. Fetus skull fragment - individual III.

Location 35:

1. Adolescent, over 16 years, proximal end of right tibia - individual VIII.

Location 36:

1. Adult rib fragment - soft tissue; individual IX.

Location 37:

1. Adult female articulated pelvis (consisting of innominates, sacrum and two lumbar vertebrae), articulated vertebral column (consisting of three lumbar vertebrae, thoracic vertebrae, two cervical vertebrae, eight right rib fragments, nine left rib fragments) - soft tissue; individual IX.

Location 39:

1. Adult right femur, left rib and fragment, two right rib fragments - soft tissue; individual IX.

Location 40:

1. Adolescent left metatarsal III - individual IV.

Location 41:

1. Adolescent scapulae and fragment - soft tissue; individual IV.
2. Child, 12 to 13 years, humeri, right scapula, right ischium, left femur - individual II.

Location 42:

1. Child right pubis, patella epiphysis, coracoid process epiphysis, scapula fragment - individual II.
2. Adult left tarsal.

Location 43:

1. Adult innominate(?) fragment.

Location 44:

1. Child, 12 to 13 years, right ulna, right humerus head epiphysis - individual II.

Location 45:

1. Adult left rib - soft tissue; individual IX.
2. Child left rib (broken), two rib fragments - individual II.

Location 46:

1. Adolescent distal end of right tibia and three fragments - individual VIII.

Location 48:

1. Two child sacral segments - spina bifida; individual II.
2. Three adult humerus fragments.

Location 58:

1. Infant left metatarsal III - exostotic growth on proximal end; individual X.

NA12654: Listing by individuals

Individual I

Middle-aged adult male.

Stature = 158.8 cm. (62.5 inches).

Soft tissue on most of the bones; many bones still articulated. Lipping of thoracic vertebrae; lipping and some ossified ligaments on lumbar vertebrae; degeneration of right articular facets on two cervical vertebrae.

Skull fragment, four cervical vertebrae, thoracic vertebrae, lumbar vertebrae, sacrum, right scapula and fragment, left innominate and fragment, two right innominate fragments, left rib and 12 fragments, seven right ribs and 12 fragments, eight rib fragments, left femur (head broken off), right femur, left tibia (broken), right tibia, four left fibula fragments, two right fibula fragments, left humerus (broken), right humerus, right radius, left ulna, all tarsals, three left metatarsals, four right metatarsals, left foot phalange and fragment.

Individual II

Child, 12 to 13 years.

Periostitis on distal end of right fibula; spina bifida.

Six skull fragments, two sacral segments, right scapula and coracoid process epiphysis, scapula fragment, left ilium, right ischium and pubis, left rib (broken), two rib fragments, patella epiphysis, left femur, right fibula, left humerus, right humerus and head epiphysis, right radius, ulnae.

Individual III

Fetus.

Skull fragment, left half of cervical vertebra arch, right half of thoracic vertebra arch, left rib, right rib (broken) and fragment, two rib fragments.

Individual IV

Adolescent.

Soft tissue on left femur and scapulae.

Spina bifida.

Sacrum, scapulae and fragment, right innominate fragment, left rib fragment, right rib and fragment, left femur, proximal end of left tibia, leg bone(?) fragment, left humerus shaft, right humerus head epiphysis, two humerus fragments, left metatarsal.

Individual V

Adult.

Soft tissue; many bones still articulated.

Right femur, tibiae, distal end of left fibula, right fibula, right humerus, right ulna, all tarsals and metatarsals, left foot phalange, six right foot phalanges, foot phalange.

Individual VI

Adolescent, over 14 years.

Left ulna.

Individual VII

Adult female.

Left scapula fragment, left innominate, right rib, two rib fragments, left humerus.

Individual VIII

Adolescent, over 16 years.

Proximal and distal ends of right tibia and three fragments.

Individual IX

Adult female.

Soft tissue; most bones still articulated.

Two cervical vertebrae, thoracic vertebrae, lumbar vertebrae, sacrum, innominates, two left ribs and ten fragments, ten right rib fragments, rib fragment, right femur.

Individual X

Infant.

Exostotic growth on proximal end of left metatarsal.

Left metatarsal.

Bone not assigned an individual number.

In addition to the ten individuals listed above, this site also contained the following bone (grouped by ages) which could not be assigned to an individual, although most of it probably does belong in the above listing. At least three distinct individuals are represented by this bone.

Young Adult

Three right metatarsals (soft tissue) with two sesamoids still articulated on metatarsal I.

Adult

Innominate(?) fragment, right rib fragment, five rib fragments, three humerus fragments, arm bone fragment, left tarsal.

NAL2655: SUMMARY

I. Distinct Individuals

Fetus	1
Child	1
Adult male	1
Adult female	1
Indeterminate adult	2

TOTAL = 6

II. -----

III. Pathologies

Individual I: Osteophytic growth on distal end of right femur and proximal end of right tibia.

Individual VI: Slight osteoporosis.

NAL2655: Listing by location numbers

Under each location, the separate numbers indicate distinct individuals; for example, two distinct adults and a child are represented by the collection made at Location 5.

Location 1:

1. Adult right tarsal, metatarsal fragment, 10 long bone fragments - individual I.

Location 2:

1. Two adult long bone fragments - individual I.

Location 5:

1. Adult tarsal fragment, three rib fragments, two vertebrae fragments, 15 long bone fragments - individual I.
2. Child fibula shaft fragment, two rib fragments - individual II.
3. Four adult arm bone fragments - individual III.

Location 6:

1. Fetal or infant skull fragment - burned; individual IV.
2. Adult long bone fragment, rib fragment - burned; individual V.

Location 7:

1. Fetus mandibular right I1, four skull fragments, vertebral body, right half of cervical vertebral arch, right clavicle fragment, vertebral end of right rib, three rib fragments, four long bone fragments, hand or foot bone fragment, unidentified epiphysis - all bone burned; individual IV.

Location 7 (cont'd):

2. Three adult skull fragments, two mandible fragments, innominate fragment, two vertebrae fragments, two rib fragments, left radius head, three arm bone fragments, left metacarpal IV, right metacarpal I, two hand phalanges - all bone burned; individual V.

Location 10:

1. Adult fragment of left mandibular ramus - burned; individual V.
2. Fetal skull fragment - burned; individual IV.

Location 13:

1. Adult skull fragment - individual I.
2. Four adult vertebrae fragments, four rib fragments, three long bone fragments - all bone burned; individual V.

Location 14:

1. Adult long bone fragment - individual I.
2. Fetus rib fragment - burned; individual IV.
3. Adult rib fragment, arm bone fragment - burned; individual V.

Location 20:

1. Four adult long bone fragments - individual I.

Location 28:

1. Child vertebral end of left rib - individual II.
2. Adult arm bone fragment - individual III.
3. Two adult rib fragments - burned; individual V.
4. Adult male right femur (osteophytic growth all along borders and on articular surfaces of distal end), right tibia (missing distal end; slight degree of osteophytic growth on proximal end), fibula shaft fragment, left humerus shaft fragment, long bone fragment - stature of 155.8 cm. (61.3 inches), based on right femur; individual I.
5. Adult female left femur, left tibia, sacrum, right scapula fragment, left talus, leg bone fragment, hand phalange - soft tissue on femur, tibia and leg bone fragment; stature of 150.6 cm. (59.3 inches), based on left femur; individual VI.

Location 45:

1. Child rib fragment - individual II.
2. Adult female frontal fragment, left innominate and fragment - soft tissue; individual VI.

NAL2655: Listing by individuals

Individual I

Adult male.

Stature = 155.8 cm. (61.3 inches).

Osteophytic growth on distal end of right femur and proximal end of right tibia.

Skull fragment, two vertebrae fragments, three rib fragments, right femur, right tibia (missing distal end), fibula shaft fragment, left humerus shaft fragment, 33 long bone fragments, right tarsal, tarsal fragment, metatarsal fragment.

Individual II

Child.

Left rib fragment, three rib fragments, fibula shaft fragment.

Individual III

Adult.

Five arm bone fragments.

Individual IV

Fetus.

All bone burned.

Six skull fragments, mandibular right I1, right half of cervical vertebra arch, vertebral body, right clavicle fragment, right rib fragment, four rib fragments, four long bone fragments, hand or foot bone fragment, unidentified epiphysis.

Individual V

Adult.

All bone burned.

Three skull fragments, three mandible fragments, six vertebrae fragments, innominate fragment, 10 rib fragments, left radius head fragment, four arm bone fragments, four long bone fragments, left metacarpal, right metacarpal, two hand phalanges.

Individual VI

Adult female.

Stature = 150.6 cm. (59.3 inches).

Slight osteoporosis.

Frontal fragment, sacrum, right scapula fragment, left innominate and fragment, left femur, left tibia, leg bone fragment, hand phalange, left tarsal.

APPENDIX D

Black and White Photographs



Figure 1 NA12,641 - View NNE across Bullet Canyon, which is about 500 ft. deep at this point. Site is in large shelter at the top of the Talus slope in the middle of the picture.

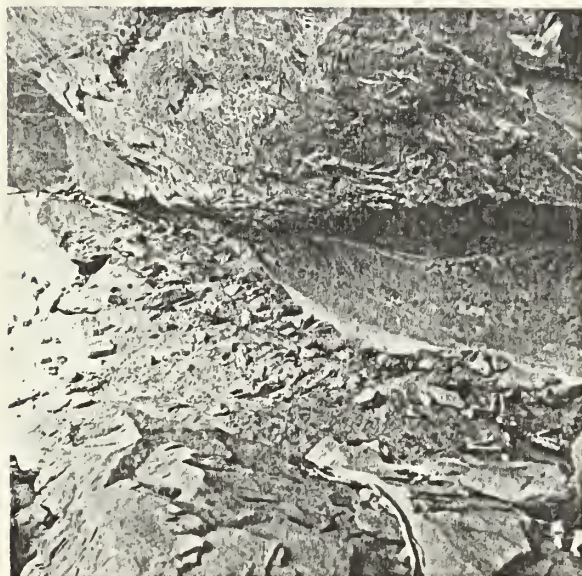


Figure 2 NA12,641 - View W of NE area of site before collection. Note the profuse amount of human bone scattered on the cave floor.

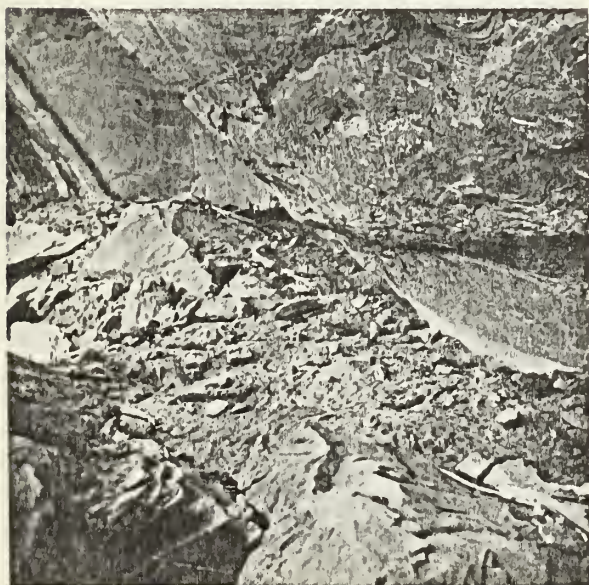


Figure 3 NA12,641 - Same view after collection.



Figure 4 NA12,641 - Partial articulated skeleton in pit 14 (individual number 38). Note flexed burial position.



Figure 5 NA12,641 - View NNE of area around pit 10 before collection. Carl Halbirt is in the company of individual number 3, shown as found. Burial had been flexed.

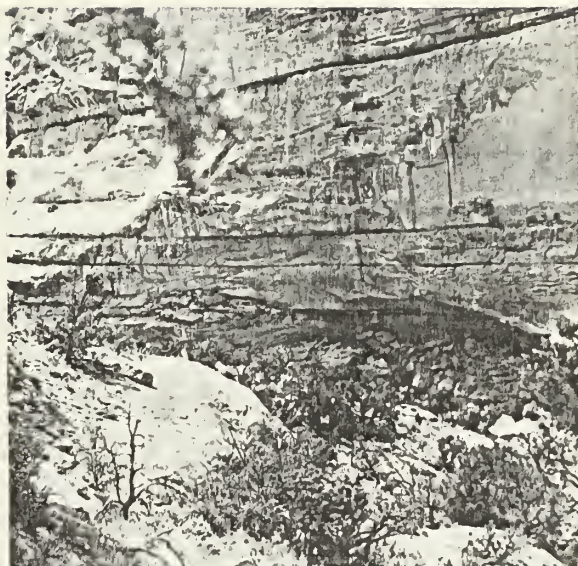


Figure 6 NA12,648 - Looking SW at Green Mask site from opposite side of canyon bottom. Note upper (level 2) defensive area to the left of and above main part of rock filled shelter.

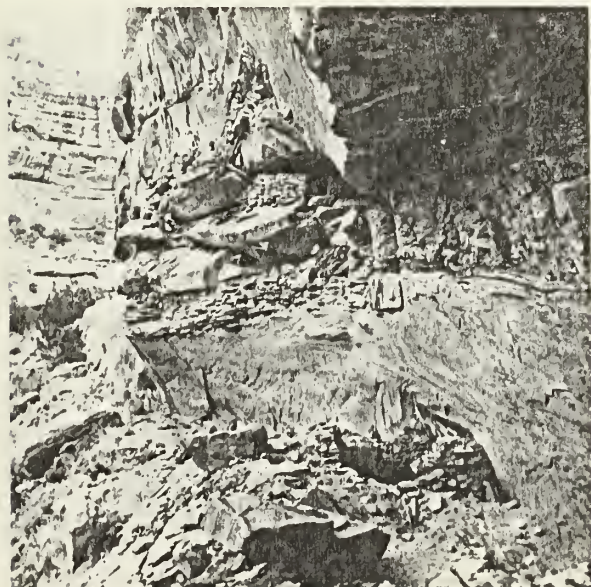


Figure 7 NA12,648 - View S of Feature C on lower level and Features D through H on upper level. Note looters' pits around base of Feature C.



Figure 8 NA12,648 - Looking N at central portion of site before collection. Note looters' pits and the undermining of the walls of both Feature B (background) and Feature C.

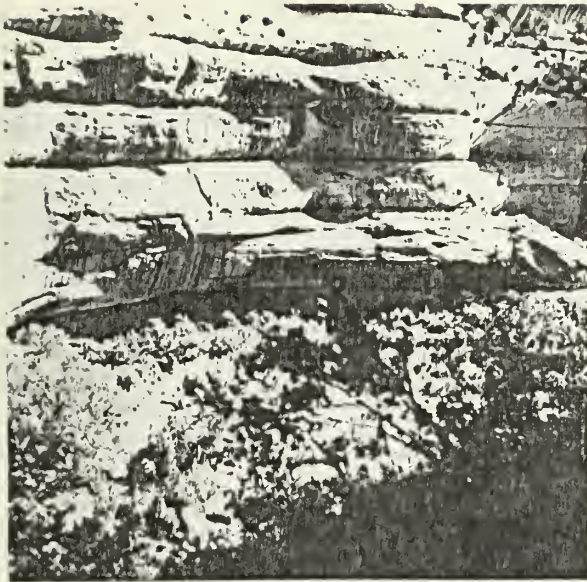


Figure 9 NA12,649 - Looking N down into shelter, the floor of which is hidden by vegetation, from across Grand Gulch wash. The upper level of site GG69-30 (Junction Site) is visible in right background.

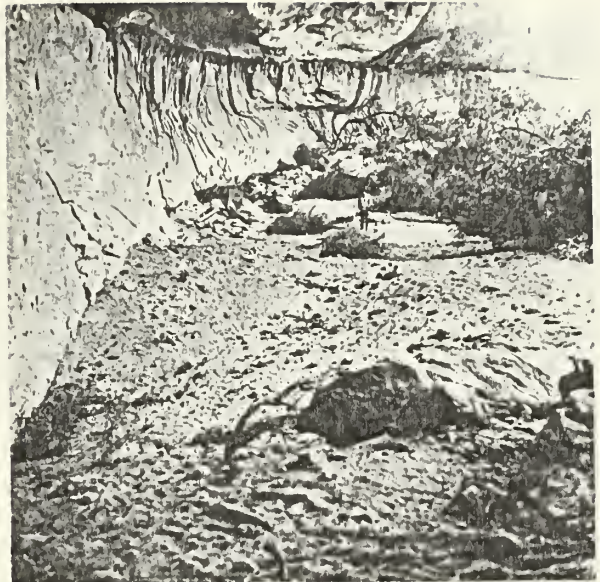


Figure 10 NA12,649 - View NE of site. Joe Brisbane of the BLM gives scale. Note large pit (pit 2) in center of photograph, left by Richard Wetherill in 1897.

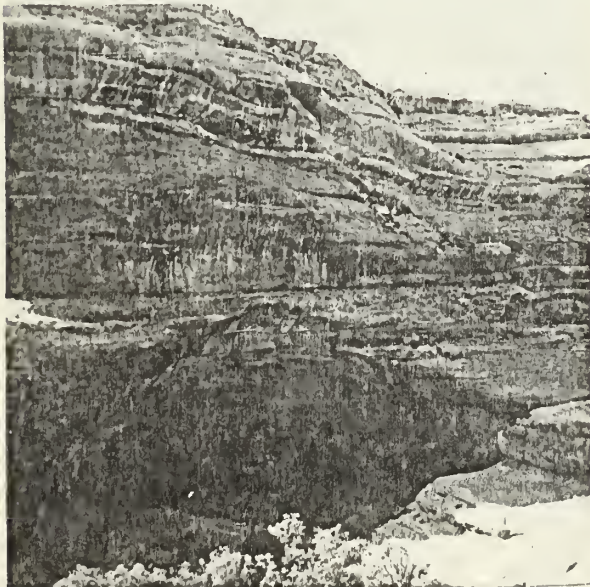


Figure 11 NA12,650 - Looking NW down into site from across Grand Gulch canyon, which is over 300 ft. deep at this point. Figure on boulder in cave gives scale.



Figure 12 NA12,650 - View SW of SW portion of cave after collection. Note extremely potted area in middle background.

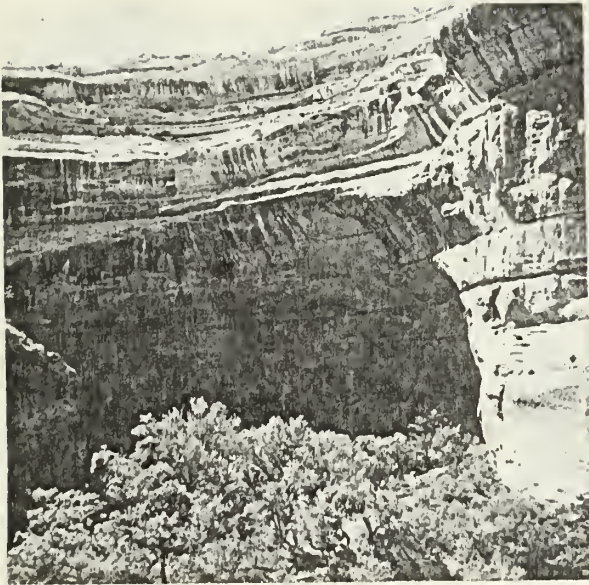


Figure 13 NA12,651 - View NW of site from across Grand Gulch canyon. Area collected is the lower right portion of cave.

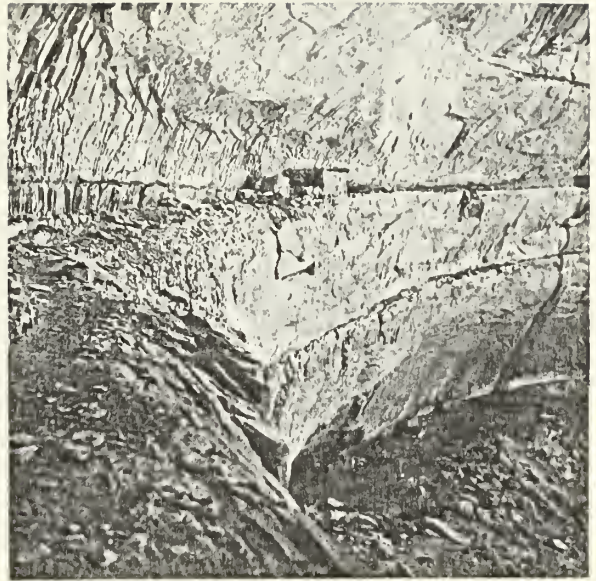


Figure 14 NA12,651 - View NE of cliff kiva on upper level (above main habitation area on lower level). Figures in area collected give scale.

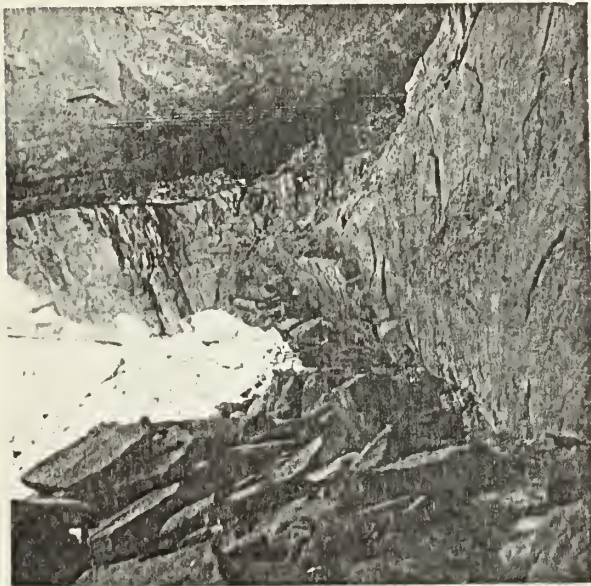


Figure 15 NA12,651 - Looking SW at access between lower and upper parts of site in SW part of shelter. This area was not collected. Note entry way in defensive wall.



Figure 16 NA12,651 - View W of the row of structures in lower habitation area. Distance to background is about 100 meters.

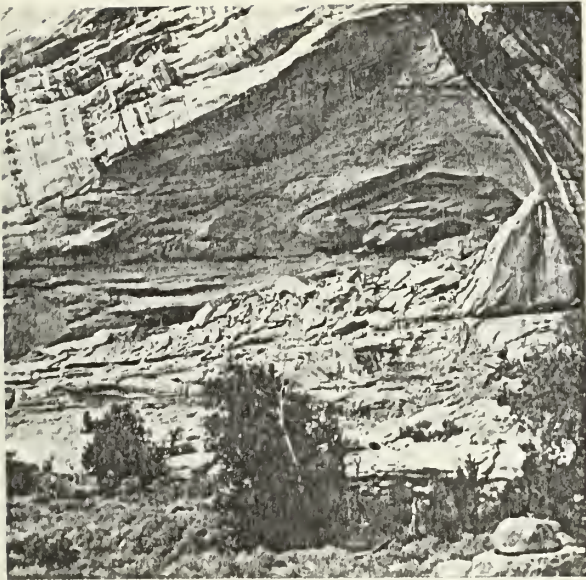


Figure 17 NA12,652 -
Looking W at main area of
site in central portion of
photograph above ledge.
Feature A is out of picture,
50 meters to the right.
Note top of alluvial terrace
below site.



Figure 18 View SW of
alluvial section in area of
site NA12,652. Height of
section here being cut by
present wash bed is between
5 and 10 meters.



Figure 19 NA12,652 -
Looking N in northcentral
part of site at extremely
potted area of midden, before
collection. Note mano placed
on rock in foreground.



Figure 20 NA12,652 -
Looking S at main area of
site during collection.
Feature D is to Charlotte
Benson's left.



Figure 21 View W of Bullet Canyon, looking downstream, between site NA12,641, at base of cliff in right background, and the Perfect Kiva site (NA12,653), out of the picture at right. Note the alluvial terraces, in the canyon bottom, into which the present wash channel is cut.



Figure 22 NA12,653 - View NW of the large deep shelter in which the "Perfect Kiva" site is located.

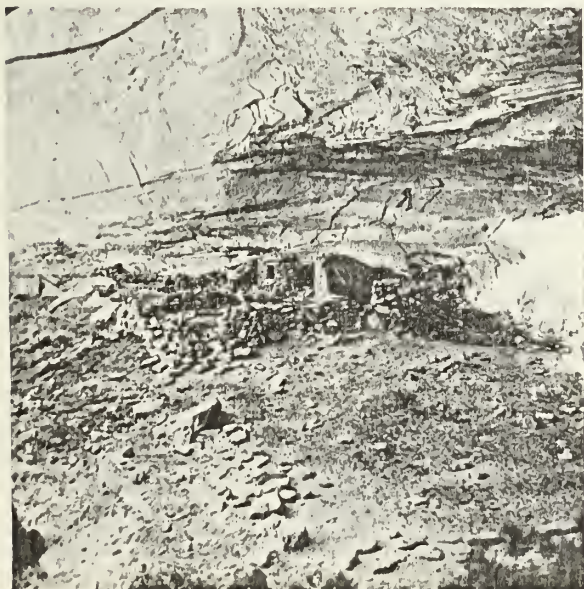


Figure 23 NA12,653 - Looking S at main area of site. Note disturbed midden in left middle ground, in front of kiva. A pole is projecting from the kiva entry way. Note also the recently collapsed roof of the structure (Feature H) behind the kiva.



Figure 24 NA12,653 - View N of kiva, with pole in entry way, and Feature H behind the kiva. Flat area in middle ground is the roof of the kiva.



Figure 25 NA12,654 - View N of site shelter at base of cliff. Burial area is in the central part of the photograph.

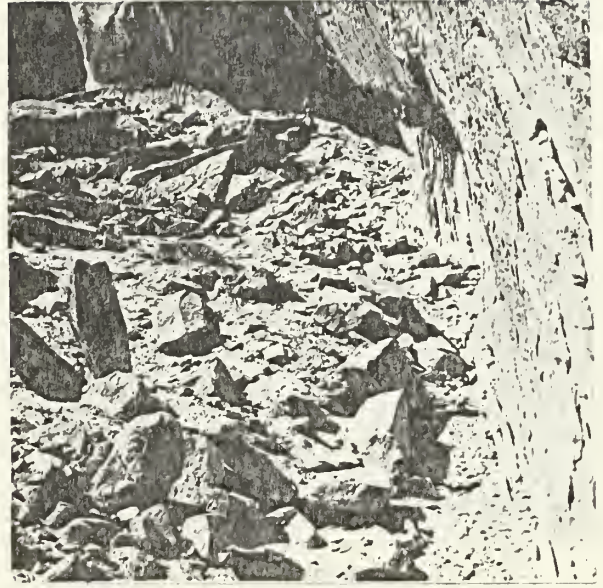


Figure 26 NA12,654 - Looking NW at NW part of burial area after collection. Bob Neily in background gives scale.



Figure 27 NA12,654 - Articulated spine and ribcage with flexed leg bones (individual number 1) in eastern part of cave, before collection.



Figure 28 NA12,654 - View W of central portion of burial area. Note looters' pits around the large boulders.

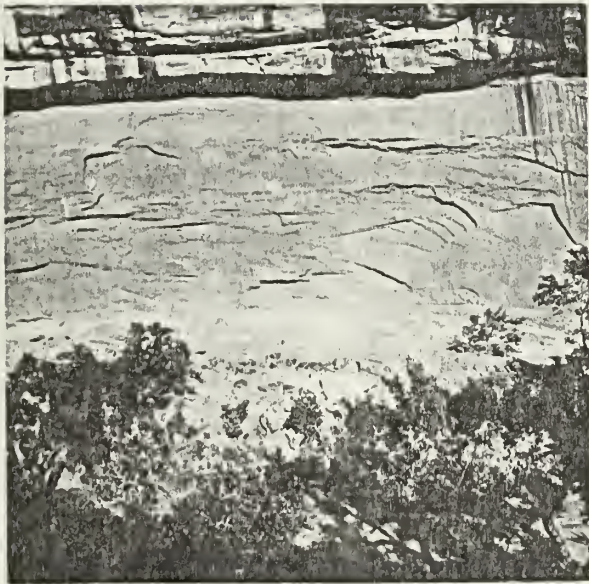


Figure 29 NA12,655 - View E of S portion of site from across Grand Gulch wash.



Figure 30 NA12,655 - Looking E at piled artifacts and bone (individuals 1 through 5), as found, before collection as location 28.



Figure 31 NA12,655 - View S of S portion of cave before collection. Note extensive looters' pits. Carl Halbirt stands at location 28, shown in the preceding photograph.



Figure 32 NA12,655 - Looking S over northcentral portion of site after collection. Note extensive looting indicated.

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