

**Archaeological Investigations  
in Turkey Cave (NA2520)  
Navajo National Monument, 1963**



**David A. Breternitz**

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**ARCHAEOLOGICAL INVESTIGATIONS  
IN TURKEY CAVE (NA2520)  
NAVAJO NATIONAL MONUMENT, 1963**

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## INTRODUCTION

Permission to conduct archaeological investigations in Turkey Cave (site NA2520 in the Museum of Northern Arizona Archaeological Survey system) under terms of the Antiquity Act is dated July 11, 1963. The permit was issued through the Southwest Region, National Park Service, and approved by Arthur H. White, Superintendent, Navajo National Monument. Funds in the amount of \$250.00 were provided by the National Park Service, through the particular interest and efforts of Charlie R. Steen, Regional Archeologist, Southwest Region. A preliminary report of the work accomplished, prepared to meet the terms of the Antiquity Act permit, was given limited distribution (Breternitz 1964).

Field operations involved five days at Navajo National Monument, June 12 through 16, plus a day of travel both to and from Boulder. Four University of Colorado students served as volunteer laborers: Duane C. Anderson, Stephen P. Ayotte, Robert G. Campbell, and Dwight A. Rokala. Jeffrey S. Dean, Laboratory of Tree-Ring Research, University of Arizona, was specifically in charge of collecting and dating the dendrochronological specimens. William C. Miller, Mt. Wilson and Palomar Observatories, Pasadena, California, was the final, and irreplaceable, member of the excavation crew. The Navajo stock utilized in transporting the crew and equipment from Monument Headquarters to Turkey Cave and return were supplied by Ed Austin. The laboratory analysis was accomplished during the 1963-64 academic year at the Archaeological Laboratory, University of Colorado, Boulder.

Alexander J. Lindsay, Jr. and J. Richard Ambler, staff members of the Museum of Northern Arizona, visited the excavation operations and provided consultation at various stages of planning and analysis. Harold S. Gladwin supplied photographs and comments pertaining to his earlier work at Turkey Cave. Early in the planning stages Dr. Emil W. Haury and the staff of the Arizona State Museum tried to locate the material obtained by Dr. Gladwin's Gila Pueblo excavations. Mr. Lindsay permitted examination of the typescript he has prepared of Byron Cummings' field notes for 1908 and 1909--these notes were made available through the Arizona Pioneer Historical Society, Tucson.

All excavated materials have been returned to Navajo National Monument.

## PREVIOUS WORK IN TURKEY CAVE

The site known as Turkey Cave is in a Navajo sandstone alcove overhang 300 to 400 yards (meters) up Kiet Siel Canyon from Kiet Siel ruin (see Figs. 1 and 2).

To Richard Wetherill goes the honor of the first recorded visit to Turkey Cave, according to the signature and date in charcoal on the back cliff wall. The faint remnant of his visit reads:

R. Wetherill  
Mancos Colo.  
1897

Wetherill worked at Kiet Siel in 1897 but he did little more than record his visit to Turkey Cave, as noted above (McNitt 1957:161).

Byron Cummings recorded the surface "Turkey Pens" and excavated two kivas at the site in 1909 (Arizona Pioneer Historical Society 1963:79-83).



Figure 1. Turkey Cave alcove, looking west. (Photo by William C. Miller)

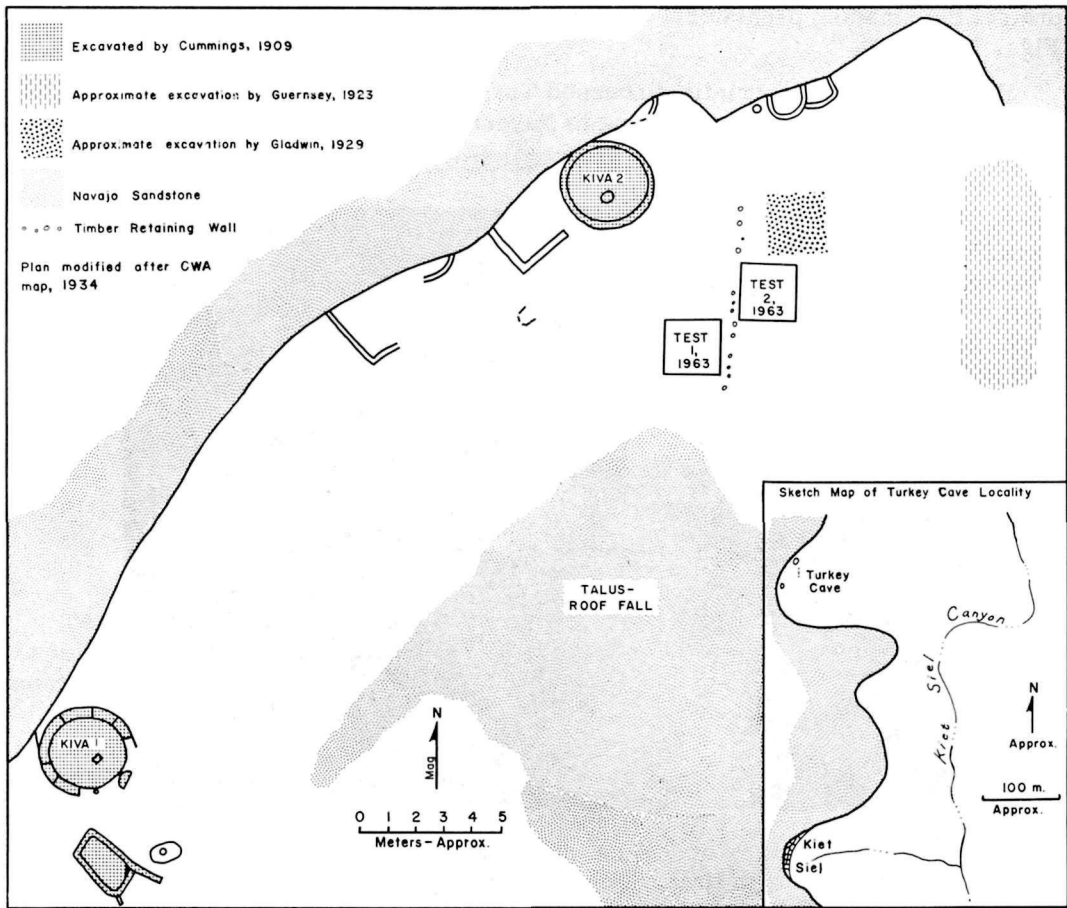


Figure 2. Plan of Turkey Cave and map of vicinity.

Samuel J. Guernsey's work in 1923 produced the first stratigraphic superposition of Pueblo I material over Basketmaker III remains in the Anasazi area. This sequence had been academically established previously, but it was not actually shown stratigraphically until Guernsey cut an east-west trench through the lower portion of the trash midden (1931:57-8).

In 1929 Harold S. Gladwin of Gila Pueblo dug a 10.5 foot deep stratigraphic test in the trash midden just downslope from the timber retaining wall (see Fig. 3). Supposedly, this work produced artifactual (primarily ceramic) material dating from Basketmaker II times through late Pueblo III. Harold S. Colton (personal communication) utilized the information given by Gladwin at the 1929 Pecos Conference as a basis for setting up the ceramic sequences which have oftentimes been taken for granted in the Kayenta Anasazi region. The fact that the notes, photographs, and actual material recovered from Gladwin's deep test have been subsequently misplaced was the prime motive in attempting to obtain a similar range of ceramic material for analysis and interpretation in the light of present research in the Kayenta area by the Museum of Northern Arizona and the University of Utah.

The Civilian Works Administration operations at Kiet Siel in 1934 included the mapping of Turkey Cave and the construction of the dry-laid walls which presently

protect the standing prehistoric masonry walls from damage by Navajo stock (see Figs. 3 and 4).

Hargrave (1935:29) briefly discussed Turkey Cave and noted its great potential for producing information pertaining to Kayenta Anasazi prehistory.



Figure 3. Looking southwest up trash slope towards timber retaining wall. Two persons in foreground are working on stratigraphic test conducted by Gila Pueblo, July 1929. (Photo courtesy of Harold S. Gladwin)

## WORK ACCOMPLISHED IN 1963

The relationship of the University of Colorado tests to previous work in Turkey Cave is shown in Figure 2. The 1963 operations consisted of the excavation and subsequent backfilling of two 2 by 2 m. test pits, located on either side of the timber retaining wall set in the general trash area of Turkey Cave (see Fig. 4). Natural or man-made stratigraphic levels were segregated when possible and in the absence of visible or obvious levels the material from the test pits was dug in arbitrary 25 cm. levels. All excavated material was put through a quarter-inch screen.

### Test Pits

Test 1 (Fig. 5), upslope of the timber retaining wall, was dug in 8 levels. Level 1 consisted of leveling the back dirt from previous excavations and when completed the upslope face of the test pit was 45 cm. high. Level 2 was 25 cm.

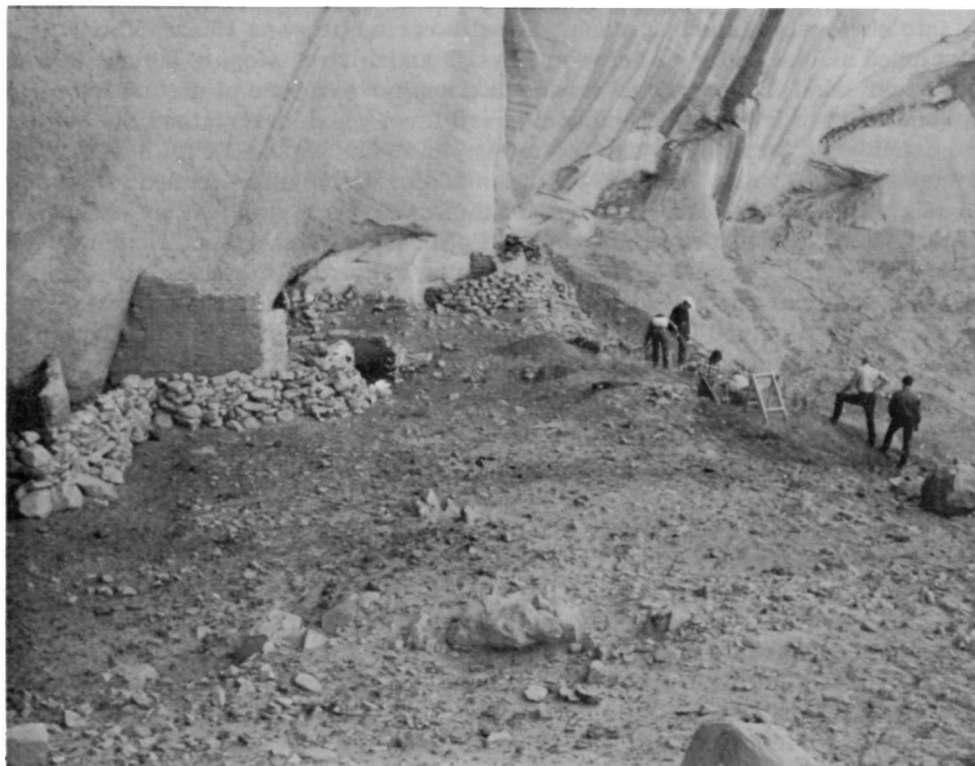


Figure 4. Looking northeast down trash slope towards timber retaining wall and Tests 1 and 2, 1963. (Photo by William C. Miller)



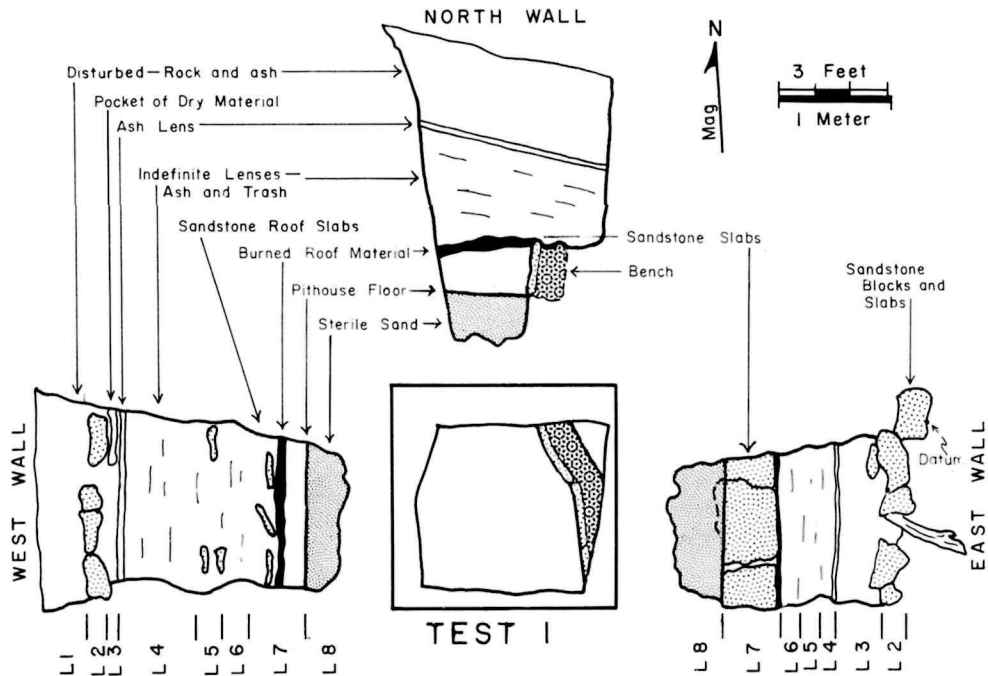


Figure 5. Plan and sections of Test 1.

thick into obviously disturbed trash. Level 3 varied between 15 and 55 cm. in depth and included all the material between Level 2 and a hard, sloping layer. In Level 3 an old paper label from a shovel was found, further evidence of disturbance. Level 4 was undisturbed trash lying below the hard level which determined the bottom of Level 3 and was 25 cm. deep into the lower end of the trash. Level 5 was an arbitrary level 20 cm. thick. Level 6 was also 20 cm. thick and extended to the bench level of a pithouse. Level 7 was composed of sand, rock, and juniper bark fill, 50 cm. deep, down to the floor of a slab-lined pithouse. The pithouse floor was 1.90 m. below the present surface. Level 8 was dug below the pithouse floor into sterile sand. The material recovered from the trash associated with the pithouse dates from the Pueblo I period (see details to follow). The test pit was lined with polyethylene sheeting and completely backfilled upon completion of the above work.

Test 2 (Fig. 6), on the downhill side of the timber retaining wall, was dug in 11 levels. A datum point was established using the wooden plug (inserted after a tree-ring sample core had been taken, sometime in the past) in one of the posts. The datum point was 5 cm. above the surface of the trash on the upslope side of the test and all vertical measurements were taken from this point. Level 1 was leveled off as a control, to a depth of 45 cm. below the datum point. Both Levels 2 and 3 were 25 cm. thick and replete with perishable materials. The majority of the trash in Test 2 lay in inclined, parallel-bedded layers but the dryness of the deposits and the amount of perishable material in the trash did not make the level-by-level situation apparent until the trash was exposed in a vertical face. Levels 5 and 6 were both 25 cm. thick—the bottom of Level 6 was 1.70 m. below the datum point, to the top of a series of Navajo sandstone blocks. Level 7, composed of material in the interstices of the sandstone fall or slump blocks marking the bottom of Level 6, was only 20 cm. thick. Level 8 was 25 cm. thick. Level 9 was 30 cm. thick, contained no pottery, and there were no more of the turkey droppings which were so abundant in Levels 1 to 8. Level 10 was 40 cm. thick, to the top of a sandy layer, and Level 11 extended to bedrock, at a depth of 3.40 m. below the datum point. The

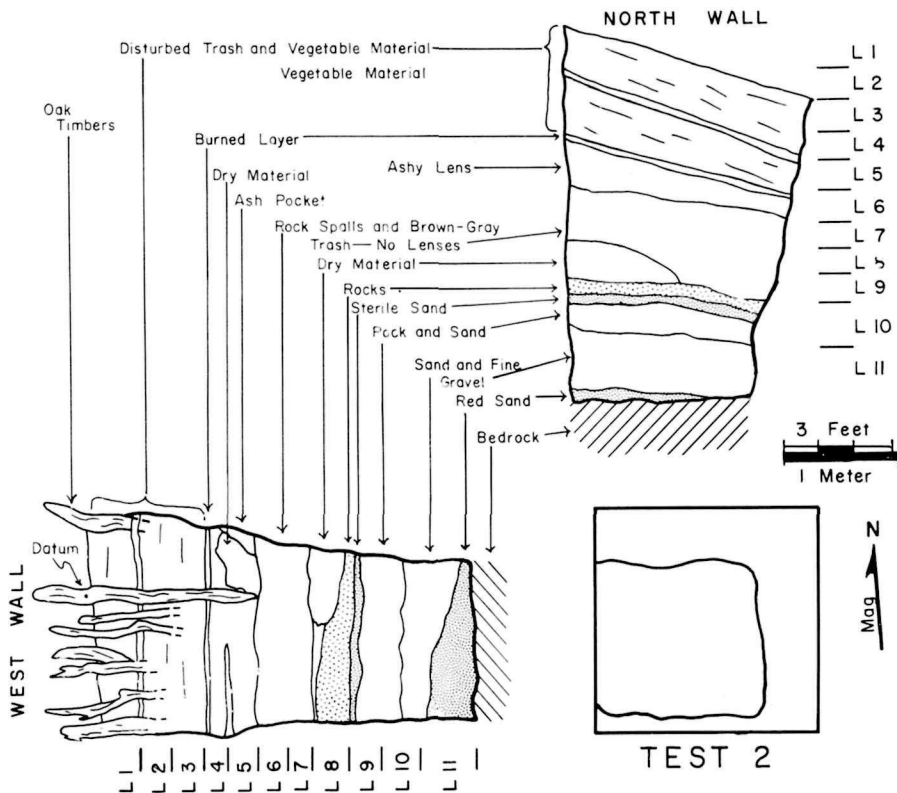


Figure 6. Plan and sections of Test 2.

walls of Test 2 were not vertical due to the extreme dryness and instability of the trash. Test 2 was backfilled after covering the east, north, and south walls of the test pit with polyethylene sheeting. Two upright oak poles were placed in the northwest and southwest corners of the test to mark the extent of the 1963 digging.

### Architecture

#### Pithouse:

In Test 1 a Pueblo I pithouse was encountered (see Fig. 5, Table 1, and Pottery section). Not enough of the structure was exposed in the bottom of the test pit to determine its over-all size but some statements regarding its gross architectural features are possible. The pithouse roof was formed of poles covered by sandstone slabs, juniper bark, and sand, up to a depth of 30 cm. The pithouse burned and the roof fell in to the general level of the bench which was about 50 cm. high, at least 30 cm. wide, and made of sandstone slabs set in mortar. The floor was clean sand. The tree-ring dates associated with the pithouse (Table 5) suggest that it dates between A.D. 725 and 800.

#### Retaining Wall:

Tests 1 and 2 are on either side of the timber retaining wall, a feature noted by all previous workers in the site. The differences in the character of the trash on either side of this wall indicate that it was, indeed, a retaining wall intended to create a leveled area toward the rear of the alcove for living space and to indicate the desired limits of garbage disposal. The oak timbers are not tied together or connected nor are they set in mortar or reinforced with rock, except at the surface,

which may be a recent protective measure. One timber was exposed in its entirety, to a depth of 1.55 m. below the surface (Fig. 6). The character of the fill, the relationship to the Pueblo I pithouse in Test 1, and the ceramic situation in both Tests 1 and 2 indicate that the retaining wall was constructed after the pithouse occupation, although the exact relationship with other features in the site cannot be stated definitely without further excavation. The possibility that the retaining wall is Pueblo III in age should not be overlooked.

Kidder and Guernsey (1919: Fig. 4) show two brush walls in Ruin 2, Sayodneechee drainage, Monuments district, which are not dissimilar to the Turkey Cave timber wall.

### Pottery

Tables 1 and 2 show the sherd counts, by levels, from Tests 1 and 2 respectively. Type designations are based on the established and published descriptions of Kayenta Anasazi pottery, except when qualified in the following discussion.

The ceramic-stratigraphic situation for the test pits is characterized in general terms as follows:

#### Test 1:

Levels 1 through 3 are disturbed and mixed, with ceramics representative of the Pueblo I (characterized by Kana-a Black-on-white) through the early Pueblo III

TABLE 1  
Pottery Recovered from Test 1

<u>Pottery Type</u>	<u>Levels</u>								Total
	L1	L2	L3	L4	L5	L6	L7	L8	
Kana-a Black-on-white	7	23	30	36	24	10	2	-	132
Black Mesa Black-on-white	13	17	32	1	-	-	-	-	63
Dogoszhi Black-on-white	-	3	3	-	-	-	-	-	6
Tusayan Black-on-white	-	2	1	-	-	-	-	-	3
Tusayan White Ware	3	16	34	15	13	5	1	-	87
Deadmans Black-on-red	3	6	7	17	9	5	-	-	47
Medicine Black-on-red	-	1	3	2	-	-	-	-	6
Tusayan Black-on-red	-	4	1	-	-	-	-	-	5
Tusayan Polychrome	1	2	-	-	-	-	-	-	3
Tsegi Orange Ware	-	5	12	1	6	-	-	-	24
Lino Gray	1	1	3	20	2	6	2	-	35
Kana-a Gray	7	25	34	19	34	18	4	-	141
Medicine Gray	-	2	3	-	-	-	-	-	5
Coconino Gray	-	2	5	-	-	-	-	-	7
Tusayan Corrugated	3	29	29	-	-	1	-	-	62
Lino Tradition	37	140	164	236	157	117	23	1	875
Unknown Gray/Brown	-	-	5	-	-	-	-	-	5
Unfired sherds	-	-	-	1	-	-	-	-	1
<b>TOTAL</b>	<b>75</b>	<b>278</b>	<b>366</b>	<b>348</b>	<b>245</b>	<b>162</b>	<b>32</b>	<b>1</b>	<b>1507</b>

TABLE 2  
Pottery Recovered from Test 2

Pottery Type	Levels*									
	L1	L2	L3	L4	L5	L6	L7	L8	L10	Total
Kana-a Black-on-white	2	-	2	2	20	7	3	1	1	38
Black Mesa Black-on-white	13	28	36	9	10	3	-	-	-	99
Sosi Black-on-white	1	-	-	-	-	-	-	-	-	1
Dogoszhi Black-on-white	4	4	-	-	-	-	-	-	-	8
Tusayan White Ware	5	8	13	6	17	4	-	-	-	53
Deadmans Black-on-red	1	8	4	14	9	2	1	-	-	39
Medicine Black-on-red	2	3	4	2	-	-	-	-	-	11
Tusayan Black-on-red	-	2	1	-	-	-	-	-	-	3
Tsegi Orange Ware	1	3	7	1	7	1	-	-	-	20
Abajo Red-on-orange	-	-	2	-	-	-	-	-	-	2
Lino Gray	3	-	4	-	1	-	1	-	-	9
Kana-a Gray	3	6	4	6	29	6	2	1	-	57
Medicine Gray	-	-	4	1	-	-	-	-	-	5
Coconino Gray	2	2	3	6	9	-	-	-	-	22
Honani Tooled	-	-	-	-	1	-	-	-	-	1
O'Leary Tooled	-	-	-	1	-	-	-	-	-	1
Tusayan Corrugated	34	95	87	22	15	1	1	1	1	257
Lino Tradition	26	29	27	27	128	33	8	3	1	282
Unfired sherds	-	-	-	-	2	-	-	-	-	2
<b>TOTAL</b>	<b>97</b>	<b>188</b>	<b>198</b>	<b>97</b>	<b>248</b>	<b>57</b>	<b>16</b>	<b>6</b>	<b>3</b>	<b>910</b>

\* - No sherds were recovered from Levels 9 and 11.

time span (see Table 1). Levels 4 through 7 are "pure" Pueblo I and Level 7 is directly associated with the roof fall and floor debris of the slab-lined pithouse previously noted. Below the pithouse floor (Level 8) the clean sand fill is for all intents and purposes sterile.

#### Test 2:

The upper levels of Test 2 are also mixed and disturbed with ceramics covering the Pueblo I through early Pueblo III time span. The gradual transition is to a mixture of Pueblo I-Early Pueblo II trash, as exemplified by Levels 4 and 5. Levels 6 through 8 are Pueblo I. The lowest three levels, 9 through 11, are essentially non-ceramic and are consequently attributed to Basketmaker II or non-ceramic Basketmaker III. The three sherds in Level 10 probably represent slump contamination from the deep and unstable sides of the test pit and the difficulties involved in removing the bottom three levels of the test, with the aid of a stew bucket and a rope.

#### Comments on Test 1 and Test 2 Ceramics:

Included in Tables 1 and 2 are five sherd disks, as follows:

Test 1, Level 3 - Black Mesa B/W, biconical perforation.  
Medicine B/R, unperforated.

Test 2, Level 2 - 2 Black Mesa B/W, unperforated.

Test 2, Level 6 - Deadmans B/R, 2 biconical perforations.

The categories of Tusayan White Ware and Tsegi Orange Ware include both undecorated sherds and sherds with insufficient designs or other diagnostic features to classify them as to type. Two of the Tusayan Polychrome sherds from Levels 1 and 2 of Test 1 fit together.

Lino Gray is designated only if a rim sherd is present. Undoubtedly, there are Lino Gray and Kana-a Gray body sherds included in the category Lino Tradition (see comments to follow). Of the total of 44 Lino Gray sherds, 9 are smudged and 3 have fugitive red paint on their exteriors.

Tusayan Gray Ware sherds which cannot be assigned to a specific type are called Lino Tradition, which is an adaptation from Ambler, Lindsay, and Stein (1964). This category is *not* a type but designates ceramics which have a surface finish and texture that is similar to the exterior surfaces of Lino Gray vessels. There may even be a few small sherds of Moenkopi Corrugated and Kiet Siel Gray included in the Lino Tradition category.

The only pottery which might not be locally made are the two sherds of Abajo Red-on-orange from Test 2, Level 3.

The problem of Anasazi black-on-red pottery was discussed at the Sixth Southwestern Ceramic Seminar (1964). The black-on-red sherds from the Turkey Cave tests are basically three types—Deadmans, Medicine, and Tusayan. The latter type is the most infrequent and the sherds so identified fit the classic description of Tusayan Black-on-red. The majority of the Deadmans Black-on-red sherds are also "classic" in the sense of the published descriptions. Medicine Black-on-red presents more of a problem and, admittedly, many of the sherds are so classified because they are obviously neither Deadmans nor Tusayan Black-on-red. The information from the Turkey Cave tests is not sufficient to clarify the problem area of Anasazi black-on-reds except to indicate that there appears to be a definite transition, in both time and decoration, between Medicine and Tusayan Black-on-reds. The Pueblo I-Pueblo II transitional period is not well-known in the Kayenta region (Lindsay and Ambler 1963:89) and the black-on-red ceramics from the Turkey Cave tests do, in part, represent this temporal and cultural transition; however, the present work merely indicates that Turkey Cave has great potential for producing further data concerning this problem area.

All neck-banded, neck corrugated, and corrugated sherds of sufficient size were measured to determine the number of coils per 4 cm. Table 3 and Figure 7 present this information. Coconino Gray and Medicine Gray constitute the neck corrugated category. The conversion scale to determine the actual width of coil is:

<u>Coils per 4 cm.</u>	<u>Width of Coil</u>
13.3-20.0	2-3 mm.
10.0-13.3	3-4 mm.
8.0-10.0	4-5 mm.
6.6- 8.0	5-6 mm.
5.7- 6.6	6-7 mm.
5.0- 5.7	7-8 mm.
4.4- 5.0	8-9 mm.
4.0- 4.4	9-10 mm.
- 4.0	10 mm. +

TABLE 3

Coil Width of Kana-a Gray, Coconino-Medicine Gray, and Tusayan Corrugated Sherds from Tests 1 and 2

Coils per 4 cm.	Test 1																				
	Level 1			Level 2			Level 3			Level 4			Level 5			Level 6					
	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC			
10.0-13.3	-	-	-	-	1	2	-	1	3	-	-	-	-	-	-	-	-	-			
8.0-10.0	-	-	1	-	-	3	-	-	6	-	-	-	-	-	-	-	-	-			
6.6- 8.0	-	-	-	-	-	3	-	-	4	-	-	-	-	-	-	-	-	-			
5.7- 6.6	-	-	-	-	-	1	-	1	2	-	-	-	-	-	-	-	-	-			
5.0- 5.7	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-			
4.4- 5.0	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-			
4.0- 4.4	2	-	-	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-			
- 4.0	-	-	-	1	-	-	6	-	-	4	-	-	4	-	-	5	-	-			
Totals	2	-	1	4	1	9	8	3	15	4	-	-	4	-	-	5	-	-			
Coils per 4 cm.	Test 2																				
	Level 1			Level 2			Level 3			Level 4			Level 5			Level 6			Level 7		
	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC	K-a	C-M	TC
10.0-13.3	-	-	3	-	1	4	-	-	5	-	1	-	-	-	-	-	-	-	-	1	
8.0-10.0	-	-	14	-	-	22	-	4	24	-	1	5	-	-	1	-	2	1	-	-	
6.6- 8.0	-	1	3	-	1	11	-	1	14	-	1	1	-	-	3	-	-	-	-	-	
5.7- 6.6	-	-	2	-	-	1	-	-	6	-	1	2	-	1	-	-	-	-	-	-	
5.0- 5.7	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.4- 5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.0- 4.4	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	
- 4.0	1	-	-	1	-	-	3	-	-	3	-	-	10	-	-	4	-	-	-	-	
Totals	1	1	22	1	2	38	4	5	49	3	4	8	15	1	4	4	2	1	1	-	1

K-a = Kana-a Gray;

C-M = Coconino and Medicine Gray;

TC = Tusayan Corrugated

The coil width of Kana-a Gray is significantly wider than either the Coconino-Medicine Gray or Tusayan Corrugated categories; the latter two categories are strikingly similar in coil width, which is perhaps a characteristic of the early Pueblo II period (see Fig. 7). There is also a significant difference in the coil width of Tusayan Corrugated when compared with the coil width of sherds found at NA 7498, a Pueblo III site on Cummings Mesa (Ambler, Lindsay, and Stein 1964: Fig. 69).

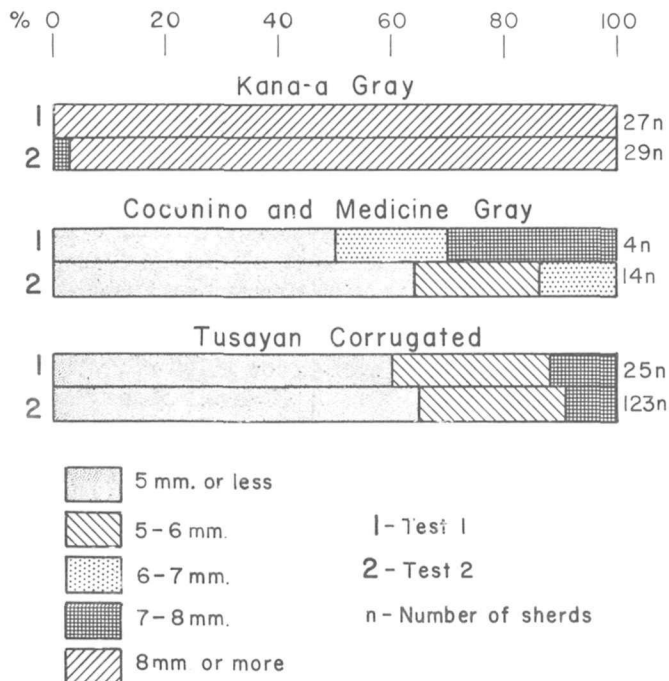


Figure 7. Coil width of Kana-a Gray, Coconino and Medicine Gray, and Tusayan Corrugated.

### Botanical Specimens

All corn, beans, and squash-gourd remains have been sent to Hugh C. Cutler, Missouri Botanical Garden, for analysis. (See Appendix I by Cutler, pp. 22-26.) From preliminary laboratory measurements and observations he noted (personal communication) that the variability of Turkey Cave corn is much greater than corn samples obtained from Anasazi sites around Navajo Mountain. This variability may be significant—it may represent a time difference, an ecological variable (Tsegi Canyon drainage vs. Navajo Mountain locale), or a corn-racial difference.

In brief, Cutler is examining 398 corn cobs (119 from Test 1 and 279 from Test 2), 45 corn kernels (26 from Test 1 and 19 from Test 2), 17 beans (13 from Test 1 and 4 from Test 2), and miscellaneous gourd-squash rinds and stems. In addition, there is a single corn cob on a stick from Test 2, Levels 2 and 3.

### Fecal Material

Eighty-five fecal specimens were collected from the two test pits. The only conclusions reached as a result of macroscopic and microscopic examination are

that some of the specimens are not human and that macroscopically there appear to be differences in the supposed human fecal specimens from the extreme upper and lower levels of the tests.

### Artifactual and Other Remains

An inventory of the artifactual and other remains recovered in 1963, and not previously discussed, is shown in Table 4. The botanical specimens sent to Cutler for analysis are not included. Comments specifically pertaining to the inventory of materials listed in Table 4 follow:

#### Cotton:

The braided cotton looks like the small tassels found on Hopi kilts and mantas. The 2 ply, Z-twist thread from Test 2, Level 3 has one ply of white cotton and one of black thread.

#### Yucca:

The 2 ply, S-twist yucca cordage is generally thinner and twisted looser than the 2 ply, Z-twist yucca cordage. The untied quids are often chewed, but there are also specimens which look like the balled-up discard material which results from cleaning green yucca with a notched rib "comb," or similar implement.

The two tied yucca quids have been examined by Elizabeth Morris Gell and she is of the opinion that they will show tobacco alkaloids when dissected (Raffauf and Morris 1960). The two specimens in question are neatly wrapped-and-tied yucca quids of the type discussed by Morris and Jones (1960:116) and which are known primarily to be associated with Basketmaker sites.

#### Feathers:

The category "feather cloth" refers to yucca cord (2 ply cordage, both Z- and S-twist) with feathers wrapped in the manner associated with feather cloth blankets. Three of the fragments recorded from Test 2, Level 5 are 2-strand, S-twist of 2 ply, Z-twist cordage base—they are probably from the same original feather textile. The feathers listed as "Turkey," "Eagle (?)," and "Blue Jay (?)," are loose feathers found in the trash and unaltered except for two turkey feathers from Test 2, Level 2 tied with yucca string.

#### Animal Fur and Hide:

The fur cloth noted is rabbit fur and is usually carried in a 2 ply, Z-twist yucca cordage, in the manner generally associated with the elements of rabbit fur blankets and robes. The 2 ply, Z-twist thread of rabbit fur on the stick, from Test 1, Level 6, is unusual. The fur specimens tabulated are unassociated finds from the trash. The buckskin spiral is about 1 cm. in diameter and is a thin strip of hide which has been tightly rolled up.

#### Human Hair:

Human head hair, black, cut, and otherwise unaltered is usually only 5 to 6 cm. in length. The 2 ply thread made from human head hair is generally Z-twist.



TABLE 4  
Inventory of Certain Materials Recovered from Tests 1 and 2

	Test 1										Test 2										
	L1	L1&2	L2	L3	L4	L5	L6	L7	L8		L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11
Cotton																					
Cloth, plain weave	-	1	-	3	1	-	1	-	-	-	-	2	1	3	1	1	-	-	-	-	-
Cloth, plain weave, red dye	-	-	-	-	-	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Braided	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Thread-2 ply, Z-twist	1	2	1	1	3	4	-	1	-	-	1	1	2	-	1	-	-	-	-	-	-
Thread-2 ply, S-twist	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Yucca																					
Plaited mat	-	-	-	1	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-
Plaited fragments	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cordage-2 ply, Z-twist	4	10	13	9	23	18	1	1	-	7	34	52	40	37	4	2	10	5	6	5	
Cordage-2 ply, S-twist	-	1	-	-	1	1	-	-	-	-	-	8	3	9	2	-	1	-	-	1	2
Cordage-2 strand, S-twist; 2 ply, Z-twist	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
3-ply braid	-	2	-	-	-	-	-	-	-	-	2	4	1	3	3	-	-	-	-	-	-
End of tumpline (reinforced loop)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
"Pottery net"	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pot rest	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Knots	2	7	14	5	3	1	4	2	-	5	10	12	12	7	4	1	3	1	1	1	1
Quids and wads, untied	6	8	9	5	-	6	9	3	-	10	25	33	18	27	8	3	2	1	1	1	3
Quids, tied	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Material bundle	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Root head-leaf base	-	-	-	2	3	5	1	-	-	1	1	13	-	3	5	-	-	1	1	-	-
Feathers																					
Feather cloth (turkey)	-	-	1	5	3	1	-	-	-	-	-	11	2	7	5	-	-	-	-	-	-
Turkey	8	5	11	-	15	7	-	-	-	9	13	7	2	7	-	3	1	-	-	-	-
Eagle(?)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Blue jay(?)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Animal fur and hide																					
Fur cloth (rabbit)	1	1	-	-	10	5	2	-	-	-	2	2	-	-	-	1	2	1	-	-	1
Rabbit fur thread on stick	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rabbit fur	1	-	1	-	2	4	-	1	-	1	2	-	1	2	-	-	1	1	-	-	3
Red squirrel fur	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Buckskin spiral	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Human hair																					
Cut, unworked	-	-	-	-	-	1	-	-	-	-	1	1	1	1	1	1	-	-	-	-	-
Thread, 2 ply	-	1	1	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1
Sandals																					
Plaited yucca	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-
Wicker, 4-warp, yucca	-	-	2	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Woven, patterned, 30-warp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Woven, crescent toe, 28- and 30-warp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Woven, colored weft, fragment	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Basketry																					
Coiled, 2-rod-and-bundle	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	1	-	-	-	1
"Wand tip"	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	4
"Material"	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Wood and botanical items																					
Arrow point	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Arrow, nock-end, reed	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reeds (arrow shafts ?)	-	-	-	-	1	3	2	-	-	-	-	-	-	1	-	-	-	-	-	-	2
"Sticks"	-	-	-	2	1	-	-	1	-	-	9	13	1	4	2	-	-	-	-	1	1
"Sticks," cut	-	-	-	-	-	-	-	1	-	-	-	3	1	-	1	-	-	-	-	-	-
Bark	-	-	-	-	1	1	2	-	-	-	1	8	1	2	1	-	-	1	-	-	1
Cattail stems, bundle, tied, cut	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Bone, Animal																					
Awls, deer metatarsal, split head	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Awl, deer ulna	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Awls, splinter, animal long bones	-	-	-	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Perforated animal rib	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Animal bone, unburned	-	1	6	11	21	6	9	4	1	2	5	3	1	10	2	3	5	7	5	3	
Animal bone, burned	1	-	-	-	1	1	1	1	-	2	1	-	-	2	1	-	1	1	1	-	-
Bone, Human	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Shell																					
<i>Olivella</i> beads	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Glycimeris</i> , bracelet fragments	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cretaceous fossil shell	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Stone																					
Proj. Pt.-small, stemmed, corner-notched	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proj. Pt.-lozenge-shaped, unnotched	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
"Blades"	-	-	-	-	2	2	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-
Scrapers	1	-	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chips	23	-	123	60	95	24	7	10	-	-	7	2	1	21	4	2	-	-	-	-	4
Hammerstones	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-	1	-	-	-	-	-
"Awl," sandstone	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Shaft straightener, sandstone	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trough metate frags, sandstone	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Basin grinding slab frags, sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mano frag., biface, sandstone	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Sandstone slab, 15x12x6 cm., tied with yucca loop	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-

14

15

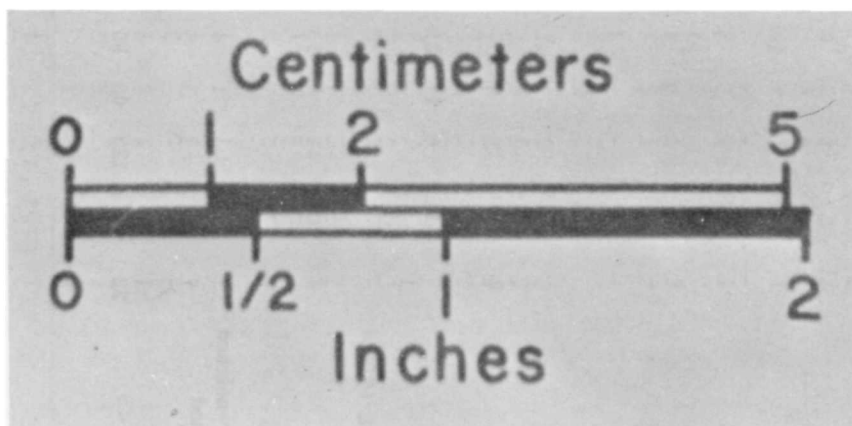
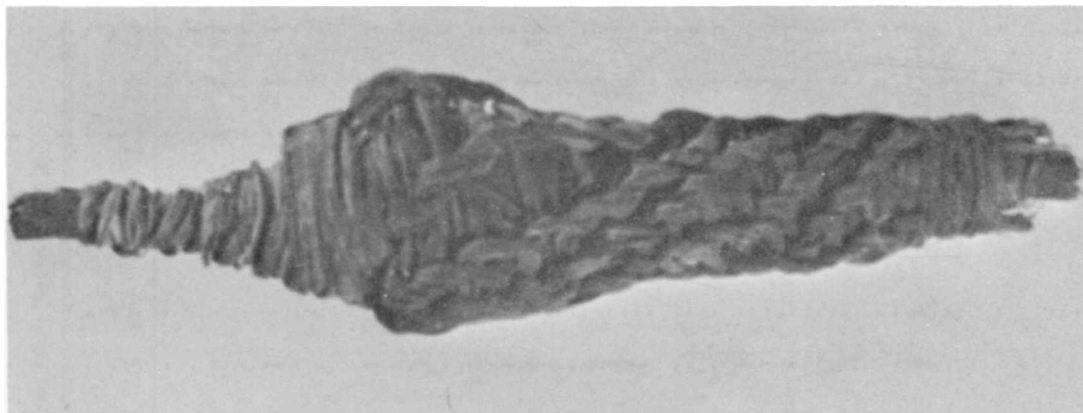
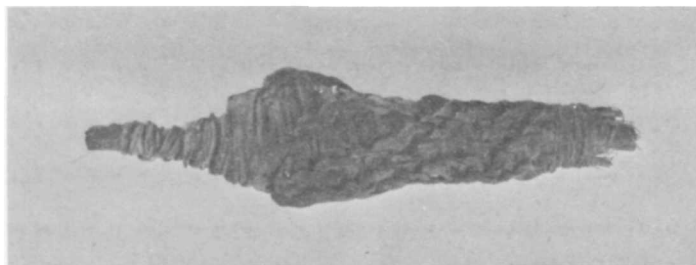


Figure 8. "Wand Tip" from Test 1, Level 7. Length 7.5 cm.

#### Sandals:

The plaited sandals are the style and technique associated with Pueblo III in the Kayenta region. All the other sandals are "older" and fit descriptions of sandals attributed to Pueblo I and earlier. No fringe-toed, Basketmaker II sandals are present in the 1963 collections.

#### Basketry:

All of the "wand tips" are simply yucca wrapped sticks, except the specimen from Test 1, Level 7. The single complete wand tip (Fig. 8) is biconical in shape

and formed of a core of thin yucca strips overlaid with a lattice-work of yucca "threads" (untwisted) using basically a coil-without-foundation basketry technique. The basketry "materials" noted are willow or boxelder twigs which have been split, presumably preparatory to use in some form of basketry.

#### Wood and Botanical Items:

The wooden arrow point is made to fit into a hollow foreshaft of a composite arrow. Both of the nock-ends of arrows are reinforced with sinew just in front of the nock itself. Two of the sticks in Test 2, Level 2 are tied with yucca fiber. Some of the bark (boxelder ?) is cut. The bundle of tied cattail stems is cut at both ends—the complete specimen is 5 cm. long.

#### Bone, Animal:

The bone awl from Test 1, Level 7 is burned and is from the top of the bench of the Pueblo I pithouse, previously discussed. The animal bone is not identified as to species and type—it is sufficient to note that deer and rabbit bones are the most common and that they are almost always broken.

#### Bone, Human:

The human bone consists of: Test 2, Level 10—the distal end of a left radius, young adult; Test 2, Level 11—both ascending rami of a child.

#### Stone:

Probably included in the category of "blades" are some knives and large, un-notched projectile points. All "blades" are incomplete, pressure flaked, bifacially chipped tools. The sandstone "awl" is abraded to form a point. The sandstone slab tied with yucca loop would function best as a weight.

### Dendrochronology

Jeffrey S. Dean has derived 11 tree-ring dates from Test 1 dendrochronological specimens and 12 from Test 2, all from charcoal fragments. None of the tree-ring dates are outside or cutting dates, but they are a great help in correlating the ceramics, the architectural features, and verifying the obvious mixture-disturbance observed in the upper levels of both tests.

The tree-ring dates are summarized in Table 5; only the outside, counted ring is given. The symbol "v" indicates that the outside ring is variable and "vv" indicates that the outside ring is very variable.

The available tree-ring dates are significant in three ways: (1) the Pueblo I pithouse in Test 1 probably dates within the A.D. 725 to 800 period; (2) the dendrochronological evidence corroborates the ceramic stratigraphy; (3) the tree-ring specimen from Test 2, Level 11 with an outer derived date of 475 vv has an inner ring dated A.D. 384, which extends the tree-ring chronology for the Tsegi area back in time for another 306 years (Jeffrey S. Dean, personal communication). This tree-ring date alone justifies the time, effort, and finances involved in the 1963 excavations in terms of its potential value for dating Basketmaker sites in the region.

TABLE 5  
Tree-Ring Dates from Tests 1 and 2

Test 1		Test 2	
Level 1	674 vv	Level 3	1022 ++vv
	652 vv		1018 vv
Level 2	952 vv		990 vv
	715 vv		984 vv
	582 vv		919 vv
Level 3	722 ++vv		895 ++vv
	547 vv		750 vv
Level 4	767 vv		685 vv
	731 vv		684 v
Level 5	958 vv	Level 4	950 v
	659 vv	Level 11	475 vv

## SUMMARY AND CONCLUSIONS

The primary purpose of the 1963 excavations in Turkey Cave was an effort to duplicate the long stratigraphic sequence found by Gladwin in 1929. Unfortunately, the reported sequence of Basketmaker II through late Pueblo III was not repeated in 1963. The turkey pens at the back of the alcove probably represent an overflow from nearby Kiet Siel and the scattered late Pueblo III surface sherds both suggest that Turkey Cave was not a site of human occupation in the late 1200's. The ceramic sequence recovered in 1963 extends, in general, from Pueblo II back to Pueblo I. Valuable ceramic information is available for the Pueblo I-Pueblo II transitional period—data not generally available at sites investigated by the Museum of Northern Arizona Glen Canyon-San Juan Project (Lindsay and Ambler 1963:89). Naturally, no Basketmaker II fired ceramics were found and also no definite Basketmaker III sherds. Gladwin (personal communication) says he does not recall that Gila Pueblo recovered any Basketmaker III pottery in 1929. Since Guernsey (1931: 57-8) found Basketmaker III and Pueblo I in stratigraphic superposition it seems likely that the Basketmaker III remains in Turkey Cave are localized. This idea is seconded by Milton A. Wetherill (personal communication) who participated in the stabilization and mapping done in 1934 and who knows of the previous work and workers at the site.

Turkey Cave is a known producer; there is still much unexcavated material available. There is a definite stratigraphic sequence (ceramic, architectural, and artifactual), possibly extending from Basketmaker II to late Pueblo III, or from the early centuries of the Christian era until the abandonment of Tsegi Canyon by the Kayenta Anasazi about A.D. 1300.

A few indications of the stratigraphy available, based on the two test pits dug in 1963, include: (1) no "turkey cloth" or turkey feathers were found in the lower levels—turkey domestication is generally accepted as beginning in Pueblo I; (2) no cotton cloth from the lower levels—also beginning about A.D. 700 in the Kayenta region; (3) trough metates, associated with post-Basketmaker II, are found only in the upper levels; (4) the ceramic changes, noted above; (5) the architectural stratigraphy; (6) the tree-ring evidence.

## RECOMMENDATIONS

The importance of Turkey Cave has been noted by every worker at the site, from Richard Wetherill through the present study. The site has great potential as an interpretive adjunct to nearby Kiet Siel—both sites are on land presently included within the boundaries of Navajo National Monument. The proven presence of pre-Pueblo III remains, in stratigraphic superposition, could be developed as an excavated and stabilized visitor facility which would greatly enhance the presentation of the Tsegi-Kayenta archaeological sequence. With increased visitation to Kiet Siel in the next few years the need for such a facility will become pressing. Turkey Cave has a proven series of occupations which could be developed IF the site were *completely* excavated. The dryness of the cave and the amount of materials already taken from the site indicate that a quantity of important artifacts are potentially available.

If nothing else, Turkey Cave is a graphic example of the history and progress of southwestern archaeology, particularly in the Kayenta Anasazi region. Richard Wetherill's explorations and specimen collecting, Cummings' overriding interest in kivas, Guernsey's investigations of the Basketmaker-Pueblo sequence, Gila Pueblo's interest in cultural and ceramic chronology, the Museum of Northern Arizona's survey operations, the CWA protection and mapping, and finally the specialized studies which brought about the present testing are a clear example of the research trends and areas of interest in southwestern archaeology, particularly in the Kayenta region.

I recommend that the National Park Service seriously consider the historical and archaeological aspects of Turkey Cave as a site for future development as an interpretive adjunct to the Kiet Siel locale and the Kayenta Anasazi region.

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## APPENDIX I

### CORN AND CUCURBITS FROM TURKEY CAVE, NA2520

Hugh C. Cutler

Missouri Botanical Garden and Washington University

Practically all of the corn falls within the range of the variable race called Pima-Papago (Anderson and Cutler 1942). The dry cobs range from the very few which approach the flint-pop corn race, Reventador, through many-rowed strains to 8-rowed flints and flours. Most of the corn probably was flint and the proportions of 9 yellow or white flint grains to 2 white flour grains found in Level 2 of Test 1 may be close to the actual proportions grown at the site. The earliest level of Test 2 yielded:

- 4 light yellow flint grains
- 2 cherry flour grains
- 1 cherry and blue flour grain
- 2 white or yellow flour grains
- 1 calico flour grain

All of these kinds have been found in Basketmaker levels of NA7523, northeast of Navajo Mountain.

The corn from this site follows the usual pattern for this region: a trend from higher row numbers and smaller and softer cobs in the older levels to fewer rows and larger and harder cobs in the more recent ones. We do not have precise methods for separating all the kinds of corn recognized by modern Indians, like the Hopi, and cannot make comparisons of a single kind with its counterparts from other levels. Even when all the corn from a level is treated as a unit, there are appreciable differences in the corn of different time periods when only number of rows of grains and cob size (as measured by the width of a cupule which bears the paired grains) are considered. The change in corn is also apparent in other cob structures, such as the lower glumes which are harder, broader, more sculptured and more variable in corn of later levels.

In Table 1 the percent of cobs of various row numbers is tabulated for the three time periods of NA2520 and similar figures are given for selected sites from this general region. There is a slight increase in cupule width in the later levels but the variability is so great that this is only apparent by averaging the measurements, and scarcely apparent on a graph of row number and cupule width (Figs. 1 and 2).

Later levels appear to have a wider range of cob shapes and colors but no counts were made for comparisons. The amount of variability in all levels of the site is greater than that present for the same period in sites on Mesa Verde, Colorado, and NA7523, a site with BM III to PIII materials from the northeast flank of Navajo Mountain, near the Arizona border.

Changes in agriculture apparently came late this far north and radical changes in corn apparent 200 miles farther south (Martin and others, 1952) did not occur



TABLE 1

Percent of Cobs of Each Row Number Found in Selected Sites and Levels.

		Rows of Grains				
		8	10	12	14	16
<u>Basketmaker II and III</u>						
	NA7423B, near Navajo Mountain, Arizona-Utah 697 cobs	11	14	47	18	10
	Mummy Cave, Canyon de Chelly 222 cobs	1	23	47	21	8
	Step House, Pit structure I, Level IV 322 cobs	9	22	46	18	5
	NA2520, Turkey Cave, Test 1, Level 11 159 cobs	21	21	47	9	2
23	<u>Pueblo I and II</u>					
	Mesa Verde sites 1676 27 cobs	7	11	30	37	15
	Antelope Cave, northern Arizona 1022 cobs	12	34	37	14	3
	NA2520, Turkey Cave, Test 1 and 2, Levels 4-7 74 cobs	22	31	39	5	3
	<u>Pueblo I to early Pueblo III</u>					
	NA2520, Turkey Cave, Test 1 and 2, Levels 1-3 126 cobs	24	38	32	5	1
	<u>Pueblo III</u>					
	Mesa Verde. Median of collections from any room or area with 26 or more cobs.					
	Step House, 29 collections	30	34	28	1	0
	Long House, 32 collections	42	35	21	1	0
	Mug House, 32 collections	46	37	15	2	0
	42 Ka 433, Benchmark Cave (Glen Canyon, 61.5 mi. upstream from Lee's Ferry) 90 cobs	30	36	29	4	1
	42 Ka 274, Talus Ruin (NA5369) (Glen Canyon, 59 mi. upstream from Lee's Ferry) 179 cobs	21	29	42	9	1

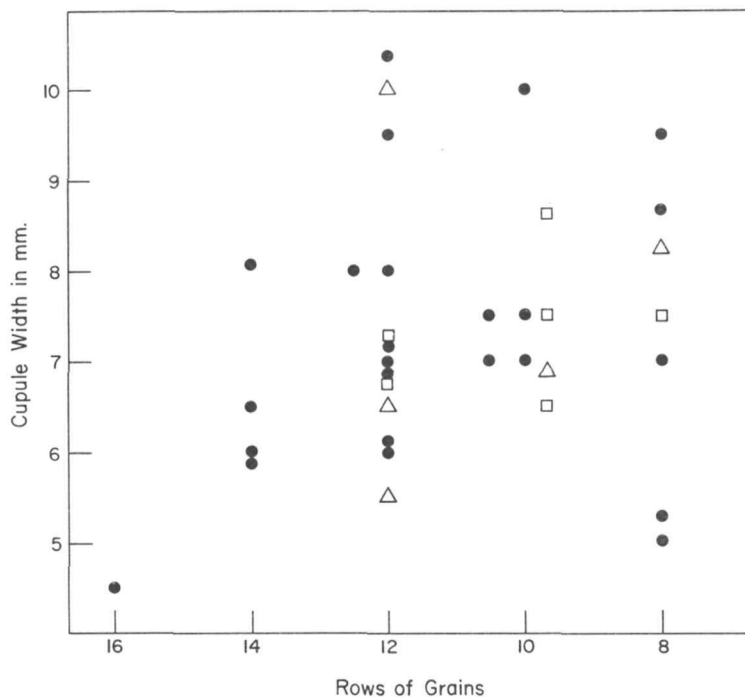


Figure 1. Diagram showing number of rows of grains and the cupule width of corn from Turkey Cave, Test 2. Specimens are indicated by: ● Level 11 (BMII); □ Level 2 (PI-early PIII); △ Level 3 (PI-early PIII).

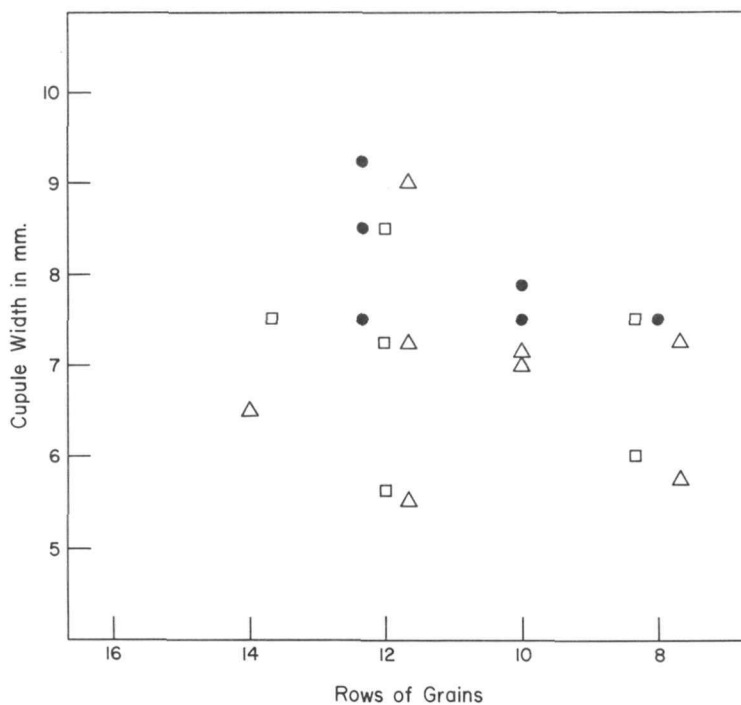


Figure 2. Diagram showing rows of grains and cupule width of corn cobs from Turkey Cave, Test 1. Specimens are indicated by: ● Level 5, □ Level 7, △ Level 4. (All are PI.)

occur here. It is possible that the corn was well adapted to its environment and new kinds could compete only when mixed with the existent adapted strains.

Fourteen corn ear shanks from Level 11 of Test 2 had well-separated nodes, and had not been pierced for stringing.

Part of a central spike of a tassel and a lateral branch fragment from Level 3 of Test 2 had no anthers and may have been gathered slightly after the anthers were shed, but it is also possible that the anthers were broken free from the filaments and lost at the site because the tassel fragments were badly battered. Three pairs of spikelets on a lateral branch found in the same level were not so badly damaged and had anthers. These tassel fragments may have been brought to the site accidentally or for bedding, or they may have been gathered for decorative use in connection with some ceremony.

Large numbers of tassels have been found, usually with the anthers present and still containing pollen, at Alkali Ridge Ruin, Utah; Floating House Ruin, near the Utah-Arizona border; Aztec Ruin, New Mexico; and at Step, Long, and Mug Houses, and site 1382 in Mesa Verde. Many of the tassels from these other sites had been tied into bunches which were then linked together with loops of yucca strips to form chains (Cutler and Meyer, 1965).

## CUCURBITS

Most of the 102 *Cucurbita* rind fragments were from the common squash or pumpkin of this region, *Cucurbita pepo*. Many of the rinds were thick, some up to nearly 6 mm., and the inner surfaces had been scraped free of flesh. Apparently these rinds were from containers like the ones found in other sites of this region. Most of the rinds came from fruits moderate in size, probably about 30 cm. tall and 25 cm. in diameter, dark green or mottled with green, yellow and orange, similar to one pictured in Cutler and Whitaker (1961, Figure 7). A few of the rinds may have come from the cushaw, *C. mixta*, which is also known from this region in Pueblo II times and later. All of the 12 peduncles are *C. pepo*. Three of the four large pepo seeds (largest are 19 × 11 mm. in length and width) are from the lowest level of Test 2, one from level 8.

Ten bottle gourd, (*Lagenaria siceraria*) rind fragments were found, none in the Basketmaker level. Several had been used as scrapers but none were decorated. There are relatively more bottle gourd fragments than are found in Navajo Mountain and Mesa Verde sites. This sample is small but it suggests that the growing season was somewhat longer and warmer or that the inhabitants of Turkey Cave enjoyed more active trade contacts with southern people.

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