



**TREE-RING DATES**  
FROM  
**ARIZONA E**  
**CHINLE - DE CHELLY - RED ROCK AREA**

Bryant Bannister  
Jeffrey S. Dean  
Elizabeth A. M. Gell

LABORATORY OF TREE-RING RESEARCH  
THE UNIVERSITY OF ARIZONA  
TUCSON  
1966

TREE-RING DATES FROM ARIZONA E

CHINLE--DE CHELLY--RED ROCK AREA

Bryant Bannister  
Jeffrey S. Dean  
Elizabeth A. M. Gell

Laboratory of Tree-Ring Research

The University of Arizona

1966



## PREFACE

This is the second of a projected series of preliminary reports on archaeological tree-ring dates from the Southwest. With the eventual objective of preparing a synthesis of Southwestern dendrochronology, all archaeological specimens now housed in the Laboratory of Tree-Ring Research are being systematically reviewed and reanalyzed on a site-by-site basis. Two grants, GS-247 and GS-908, awarded to The University of Arizona by the National Science Foundation have made this project possible and are most gratefully acknowledged.

We sincerely appeal to archaeologists who make use of this report to offer critical comment and to point out errors, and we earnestly solicit additional information regarding site locations, proveniences, alternate site names, descriptions, and other data that will enhance the scientific value of our final synthesis. Only by the sharing of personal experience and knowledge of those who have worked in the field will our record ever approach completeness.

Although I have assumed overall administrative responsibility for the project, the real heart of our program has been ably directed by Jeffrey S. Dean who has supervised all specimen dating work, and by William J. Robinson who has been in charge of the archaeological aspects of the study. Elizabeth A. M. Gell, whose intimate knowledge of the archaeology of Arizona made her ideally suited for the task, assembled and prepared the site information contained in this report. The illustrations were drawn by Forrest W. Meader, and Richard L. Warren assisted in the analysis of the tree-ring samples. As with our first report, Miss Candace Lane again cheerfully handled the typing chores. Prior to the initiation of this project, David A. Breternitz reorganized the Laboratory's tree-ring collections and helped formulate many of the procedures utilized in our current research. To all these people, and to the many archaeologists and dendrochronologists upon whose work our results are based, I am deeply indebted.

The spirit of this series of publications is that of a Fourth Beam Expedition; performed this time in the laboratory and the files. We hope the Fifth Expedition will be conducted in the field.

Bryant Bannister

Tucson, Arizona  
April 1, 1966

## TABLE OF CONTENTS

	<u>Page</u>
PREFACE	ii
LIST OF FIGURES	iv
INDEX OF CROSS-REFERENCE OF SITE DESIGNATIONS	v
INTRODUCTION	1
THE CURRENT REPORT	1
ORGANIZATION OF RESEARCH	2
PRESENTATION OF DATA	2
EXPLANATION OF SYMBOLS	4
TREE-RING DATES FROM ARCHAEOLOGICAL SITES	11

<u>Map Reference No.</u>	<u>Name</u>	<u>Page</u>
1.	Lukachukai, Misc. I	11
2.	Vandal Cave	12
3.	Twin Caves	13
4.	Painted Cave	*
5.	Hospitibito Canyon, Misc. I	14
6.	Slab Base Site	*
7.	Not Used	--
8.	Tsegie-o-chong	*
9.	Mummy Cave	15
10.	Mummy Cave No. 2	20
11.	Tse-ya-tso Cave	22
12.	Canyon del Muerto, Misc. I	24
13.	Antelope Cave	25
14.	Not Used	--
15.	Ruin 1 (Canyon de Chelly)	*
16.	Ruin 2 (Canyon de Chelly)	*
17.	Ruin 3 (Canyon de Chelly)	26
18.	White House	27
19.	Tse Ta'a	*
20.	Sliding Ruin	29
21.	Mindeleff No. 15	31
22.	Wild Cherry Ruin	*
23.	Three Turkey House	32
24.	Canyon de Chelly, Misc. I	33
25.	Cave 1 (del Muerto)	34
26.	CC 197 (NPS)	*



TABLE OF CONTENTS, continued

TREE-RING DATES FROM ARCHAEOLOGICAL SITES, continued

Page

<u>Map Reference No.</u>	<u>Name</u>	<u>Page</u>
27.	Broken Flute Cave	35
28.	Cave 1 (Red Rock)	40
29.	Cave 2 (Red Rock)	41
30.	Cave 3 (Red Rock)	44
31.	Cave 6 (Red Rock)	45
32.	Cave 7 (Red Rock)	46
33.	Cave 8 (Red Rock)	47
34.	Obelisk Cave	48
35.	Red Rock, Misc. I	50
36.	Prayer Rock Cave	51
37.	Pocket Cave	52
38.	NA 8294	*
39.	NA 7696	*

\* Indicates undated sites

REFERENCES

53

-----  
LIST OF FIGURES

		<u>Page</u>
Fig. 1	Location of Sites in Arizona E	6
Fig. 2	Location of Sites in the Canyon de Chelly Area	7
Fig. 3	Location of Sites in the Red Rock Area	8
Fig. 4	Sequence of Chronological Components in Arizona E	9

INDEX OF CROSS-REFERENCE OF SITE DESIGNATIONS

\* Indicates primary site reference

Antelope Cave- - - - - \*

Antelope House - - - - - See Antelope Cave

Arizona E:7:1 (ASM)- - - - - See Vandal Cave

Arizona E:7:2 (ASM)- - - - - See Painted Cave

Arizona E:8:1 (ASM)- - - - - See Broken Flute Cave

Arizona E:15:1 (ASM) - - - - - See White House

Arizona E:15:6 (GP)- - - - - See White House

Arizona E:15:11 (ASM)- - - - - See Three Turkey House

Artist's Cave- - - - - See Painted Cave

Big Cave - - - - - See Tse-ya-tso Cave

Broken Flute Cave- - - - - \*

Canyon de Chelly, Misc. I- - - - - \*

Canyon de Chelly 7:11 (GP) - - - - - See Vandal Cave

Canyon de Chelly 7:12 (GP) - - - - - See Twin Cave

Canyon de Chelly 7:14 (GP) - - - - - See Tsegie-o-Chong

Canyon de Chelly 8:3 (GP)- - - - - See Broken Flute Cave

Canyon de Chelly 8:4 (GP)- - - - - See Obelisk Cave

Canyon de Chelly 8:5 (GP)- - - - - See Cave 1 (Red Rock)

Canyon de Chelly 15:6 (GP) - - - - - See White House

Canyon de Chelly 15:10 (GP)- - - - - See Antelope Cave

Canyon de Chelly 15:19 (GP)- - - - - See Tse-ya-tso Cave

Canyon de Chelly 15:20 (GP)- - - - - See Mummy Cave

Canyon de Chelly 15:21 (GP)- - - - - See Sliding Ruin

Canyon de Chelly 15:22 (GP)- - - - - See Cave 1 (del Muerto)

Canyon de Chelly 15:23 (GP)- - - - - See Mummy Cave 2

Canyon de Chelly 15:24 (GP)- - - - - See Ruin 1 (Canyon de Chelly)

Canyon de Chelly 15:25 (GP)- - - - - See Ruin 2 (Canyon de Chelly)

Canyon de Chelly 15:26 (GP)- - - - - See Ruin 3 (Canyon de Chelly)

Canyon del Muerto, Misc. I - - - - - \*

Cave of the Winds- - - - - See Tse-ya-tso Cave

Cave 1 (del Muerto)- - - - - \*

Cave 1 (Red Rock)- - - - - \*

Cave 2 (Red Rock)- - - - - \*

Cave 3 (Red Rock)- - - - - \*

Cave 6 (Red Rock)- - - - - \*

Cave 7 (Red Rock)- - - - - \*

Cave 8 (Red Rock)- - - - - \*

CC 197 (NPS) - - - - - \*

Fulton's Cave- - - - - See Painted Cave

Great Cave - - - - - See Tse-ya-tso Cave

Hogan 1, Group 1 - - - - - See Canyon de Chelly, Misc. I

Hogan 6, Group 3 - - - - - See Canyon de Chelly, Misc. I

Hospitibito Canyon, Misc. I - - - - - \*



Kini-nae-kai- - - - - See White House  
 Lukachukai, Misc. I - - - - \*  
 Mindeleff No. 15- - - - \*  
 Mindeleff No. 32- - - - See Sliding Ruin  
 Morss No. 36- - - - See Tsegie-o-Chong  
 Mummy Cave- - - - \*  
 Mummy Cave No. 2- - - - \*  
  
 NA 1747 - - - - See Three Turkey House  
 NA 2186 - - - - See Mummy Cave  
 NA 2187 - - - - See White House  
 NA 3467 - - - - See Three Turkey House  
 NA 4309 - - - - See Tsegie-o-Chong  
 NA 7422 - - - - See Vandal Cave  
 NA 7696 - - - - \*  
 NA 8294 - - - - \*  
  
 Obelisk Cave- - - - \*  
 Obelisk Cave area - - - - See Red Rock, Misc. I  
 Oldisk Cave - - - - See Obelisk Cave  
 Owl Head Cave - - - - See Broken Flute Cave  
  
 Painted Cave- - - - \*  
 PE-8 - - - - See Tsegie-o-Chong  
 Pocket Cave - - - - \*  
 Prayer Rock Cave- - - - \*  
 Prayer Rock Cliff Dwelling- - - - See Prayer Rock Cave  
 Prayer Rock Cove- - - - See Prayer Rock Cave  
 Promontory Ruin - - - - See Tsegie-o-Chong  
  
 Red Rock, Misc. I - - - - \*  
 Ruin 1 (Canyon de Chelly) - - - - \*  
 Ruin 2 (Canyon de Chelly) - - - - \*  
 Ruin 3 (Canyon de Chelly) - - - - \*  
  
 Sagi Ochong - - - - See Tsegie-o-Chong  
 Se-ha-tso - - - - See Tse-ya-tso Cave  
 Slab Base Site- - - - \*  
 Sliding Ruin- - - - \*  
  
 Three Turkey House- - - - \*  
 Tower House - - - - See Mummy Cave  
 Tseahatso - - - - See Tse-ya-tso Cave  
 Tse-i-ya-kin- - - - - See Mummy Cave  
 Tsegie-o-Chong- - - - - \*  
 Tse Ta'a - - - - \*  
 Tse-ya-tso Cave - - - - \*  
 Twin Caves- - - - \*  
  
 Vandal Cave - - - - \*

White House - - - - - \*

Wild Cherry Ruin- - - - - \*

ASM indicates Arizona State Museum site survey

GP indicates Gila Pueblo site survey

NPS indicates National Park Service site survey

NA indicates Museum of Northern Arizona site survey



## INTRODUCTION

The Laboratory of Tree-Ring Research has been serving as a repository for archaeological wood and charcoal specimens since 1916 when A. E. Douglass began seeking prehistoric wood in an effort to extend his modern ring chronologies into the past. While his primary interest was in compiling an extensive dendroclimatic record to facilitate long range weather prediction studies, the collection and eventual dating of hundreds of pieces of prehistoric wood was of inestimable value to archaeologists.

Dendrochronology provides the most precise prehistoric temporal control in the world. Determination of the cutting date of artifactual and architectural materials made of wood is of the greatest importance to culture historians. At the present time Southwestern archaeologists have over 2000 years of continuous records. From an initial group of relatively few cross-dated beams from the southwestern United States, detailed regional records have been compiled for most of this area and parallel studies are being or have been developed in the Arctic, the Great Plains, California, Mexico, Europe and western Asia.

Douglass acquired more than 10,000 laboratory specimens during a 45 year period. Small groups of dates derived by him and his staff appeared at intervals in diverse publications, most of them appearing in the Tree-Ring Bulletin. Then in 1951, Terah L. Smiley reviewed the existing collection and published a summary of reliable sites and dates. This was a major advancement of the state of knowledge and has been the standard reference in the field.

By the beginning of the present decade it had become apparent that a new evaluation of archaeological specimens was necessary. A vast number of additional specimens had been collected and many new and better study techniques had been developed. In addition, at various times over the years, other institutions which maintained collections of dendrochronological materials had turned them over to the Laboratory of Tree-Ring Research for preservation and study. The original Douglass collection has been augmented by the acquisition of collections from Gila Pueblo, the Laboratory of Anthropology at Santa Fe, and the Museum of Northern Arizona. The aggregate group now numbers about 100,000 specimens and the time seems right to attempt an up-to-date synthesis of archaeological tree-ring dating.

## THE CURRENT PROJECT

In July 1963, the Laboratory of Tree-Ring Research received a National Science Foundation grant to cover the costs involved in re-assessing and reworking all of the specimens in its collection. This study has been productive even beyond the hopes of the investigators and a renewal grant was received in July of 1965 to carry this work to completion.

The development of more sophisticated techniques of sample preparation, analysis, and interpretation has now made it possible to achieve a high level of efficiency in the production of dates. The current project involves a systematic restudy of pertinent parts of the collection with the basic aims: (1) checking past work, (2) obtaining as many new dates as

possible, (3) extracting the chronological parameters necessary for prehistoric climatic interpretation, and (4) organizing the resultant data. To this end a series of preliminary publications presenting a summary of the available information about the sites and the derived dendrochronological information is being produced. This paper, Tree-Ring Dates from Arizona E: Chinle--de Chelly--Red Rock Area, is the second of these. Specialized chronological data of interest to dendrochronologists, such as standardized indices and plotted growth curves will appear at intervals in the Tree-Ring Bulletin.

This series should be of the greatest importance to Southwestern archaeologists. With all prehistoric materials checked for provenience, dating, and possible duplication, the available dendrochronological controls for each site are exactly determined. The provenience of dates within a site and the temporal ordering of sites within a geographic area are presented as precisely as possible. In most cases, existing published dates from individual sites have been corroborated; a few have been changed. In many cases, new dates have been obtained for these units which serve to augment the range and detail of chronological control. In addition, many specimens from new sites have been dated. Some of these are products of recent excavations; others, whose characteristics presented various procedural problems in the past, are now datable because of the knowledge derived from an intensive dendrochronological study of the geographic and temporal units involved.

These new data are translatable into the finest of prehistoric temporal controls. For example, the chronological data from the various quadrangles, largely derived from short occupancy sites with a localized geographic distribution, present an unequalled opportunity for studies of cultural attributes and change. Ceramic and architectural development, settlement patterns, population movements, demographic estimates, and numerous other studies can be undertaken with a precision previously impossible. The information derived by this project will be instrumental in any future synthesis of Southwestern archaeology.

#### ORGANIZATION OF RESEARCH

At the beginning of this study a procedural decision was made that the organization would be areal with the archaeological site as the basic unit of study and that the sites would be grouped into arbitrary regional units which would allow thorough intensive studies. The sites have been studied individually, and as a group, by comparing all the sites within a quadrangle. The quadrangles, which correspond to those established by the Survey system of the Arizona State Museum (Wasley 1957), encompass 1 degree of longitude and 1 degree of latitude. This grouping has allowed the building of firm regional tree-ring chronologies and has resulted in increased understanding of local ring variation which in turn has permitted more dating of individual specimens.

#### PRESENTATION OF DATA

Although the Laboratory's records include all archaeological sites from which tree-ring specimens have been collected, data are presented in



this report only for sites with dated specimens. Undated sites are shown in Figs. 1-3 and listed in the Table of Contents on page iii. The information available to the Laboratory on the dated sites is very uneven. In the past 40 years, many tree-ring specimens were collected for the primary purpose of chronology building and, as a consequence, the archaeological characteristics of the collection site were frequently recorded only in general terms. In some cases, the location of the site has been lost as a result of incomplete records or as a result of acceptance of specimens for chronology purposes without the details of archaeological provenience. Some sites have been placed in quadrangles only by inference on the part of the present staff and may, in fact, belong to a different area entirely. However, every effort has been made to obtain as much information as possible.

In a limited number of cases, specimens for which records exist have not been identified in the collections. The problems thus created are not great as these specimens are usually only a few of many from a site. If they were previously dated, however, they are not so considered in this report. Occasionally, the lost specimens represent the total collection from a site and, as a consequence, the site does not appear in the reports. The only instance of this situation in Arizona E is Painted Cave (Haury 1945: 19-20) whose single previously dated specimen cannot now be located.

To summarize the data presented, a chart has been prepared (Fig. 4) which represents the sequence of dated sites and structures. The components are ranked from late to early according to the latest outside dates only and the chart is not intended to be used to chronologically position the listed sites. Temporal placement of sites must depend upon careful assessment of both archaeological and dendrochronological evidence.

The following notes help to explain the categories used in the presentation of data.

Site: The Laboratory has chosen, often arbitrarily, what it believes to be the most common designation of a site.

Alternate name and number: Many sites have been known by various names in the literature or in local usage. Many sites also carry two or more institutional designations. In this category, an attempt has been made to list all such alternates that have been applied to the site.

Location: Sites are located on a map (Fig. 1) as well as by a brief descriptive note. In some cases, the Laboratory records give more precise locations, particularly for recently excavated sites, but for the purposes of this report the location given was deemed sufficient. Some sites are presented with only approximate locations.

Description: Information about the site is taken from published reports and readily available knowledge. No exhaustive search to obtain unpublished notes was made.

Source of Collection: To enable readers to assess the provenience data, the individual, the institution and the date of collection are listed.

References: All published sources known for archaeological data (site description) pertaining to the site and the sources for previous publication of dates (published dates) from the site are given.

Dates: The dates are presented under provenience groupings when known and in chronological sequence. Experience has shown that the inclusion of catalog numbers is a valuable addition for future reference and for scientific identification of dated specimens. GP indicates a Gila Pueblo number, F indicates a Museum of Northern Arizona number, and RG indicates a Laboratory of Anthropology number. All other numbers were assigned by the Laboratory of Tree-Ring Research. Every effort has been made during analysis to eliminate duplication of dates derived from the same piece of original wood. The identification of duplication has been done solely on ring characteristics except in cases where the provenience data specify duplication or for pieces that obviously fit together. The latter case is prevalent in large ruins that were sampled by more than one institution. In all cases of duplication, only one date appears in the list and the catalog number is that of the best chronological piece.

Comments: The comments are based on the tree-ring evidence. A more sophisticated interpretation of the dates is reserved for the archaeologist who is analyzing the site as a whole.

#### EXPLANATION OF SYMBOLS

The symbols used with the inside date are:

- year - no pith ring present
- p - pith ring present
- fp - the curvature of the inside ring indicates that it is far from the pith
- ±p - pith ring present, but due to the difficult nature of the ring series near the center of the specimen, an exact date cannot be assigned to it. The date is obtained by counting back from the earliest dated ring.
- ± - the innermost ring is not the pith ring and an absolute date cannot be assigned to it. A ring count is involved.

The symbols used with the outside date are:

- B - bark present
- G - beetle galleries are present on the surface of the specimen
- L - a characteristic surface patination and smoothness, which develops just under the bark, is present
- c - the outermost ring is continuous around the full circumference of the specimen. This symbol is used only if a full section is present
- r - less than a full section is present, but the outermost ring is continuous around available circumference

- v - a subjective judgment that, although there is no direct evidence of the true outside on the specimen, the date is within a very few years of being a cutting date
- vv - there is no way of estimating how far the last ring is from the true outside
- + - the nature of the dating is such that one or more rings may be missing near the end of the ring series whose presence or absence cannot be determined because the specimen does not contain enough additional rings to provide an adequate check
- ++ - a ring count was necessary due to the fact that beyond a certain point the specimen could not be dated

The symbols B, G, L, c and r indicate cutting dates in order of decreasing confidence, unless a + or ++ is also present.

The symbols L, G, and B may be used in any combination with each other or with the other symbols except v and vv. The r and c symbols are mutually exclusive, but may be used with L, G, B, + and ++. The v and vv are also mutually exclusive and may be used with the + and ++. The + and ++ are mutually exclusive but may be used in combination with all the other symbols.



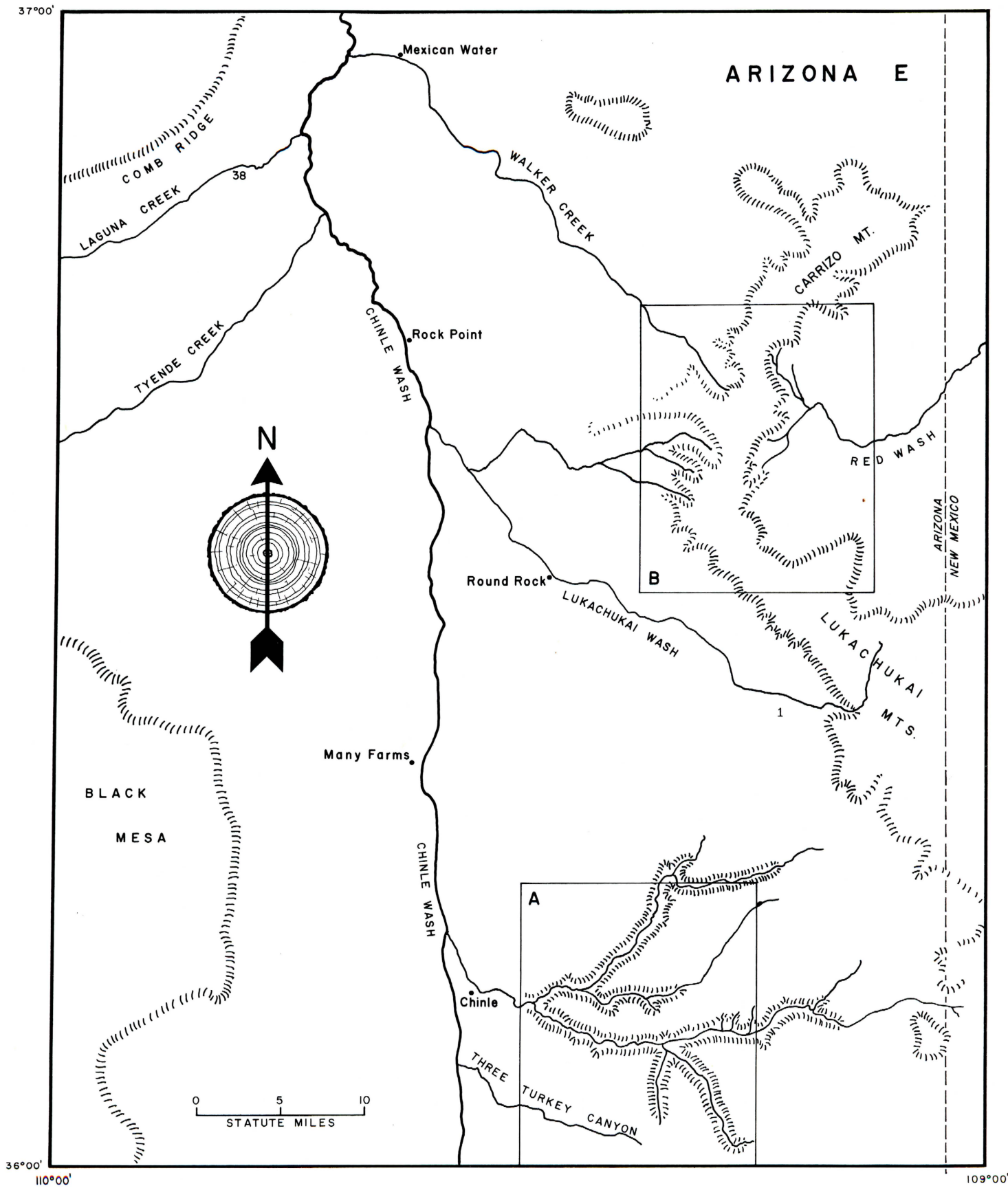


Figure 1. Location of Sites in Arizona E



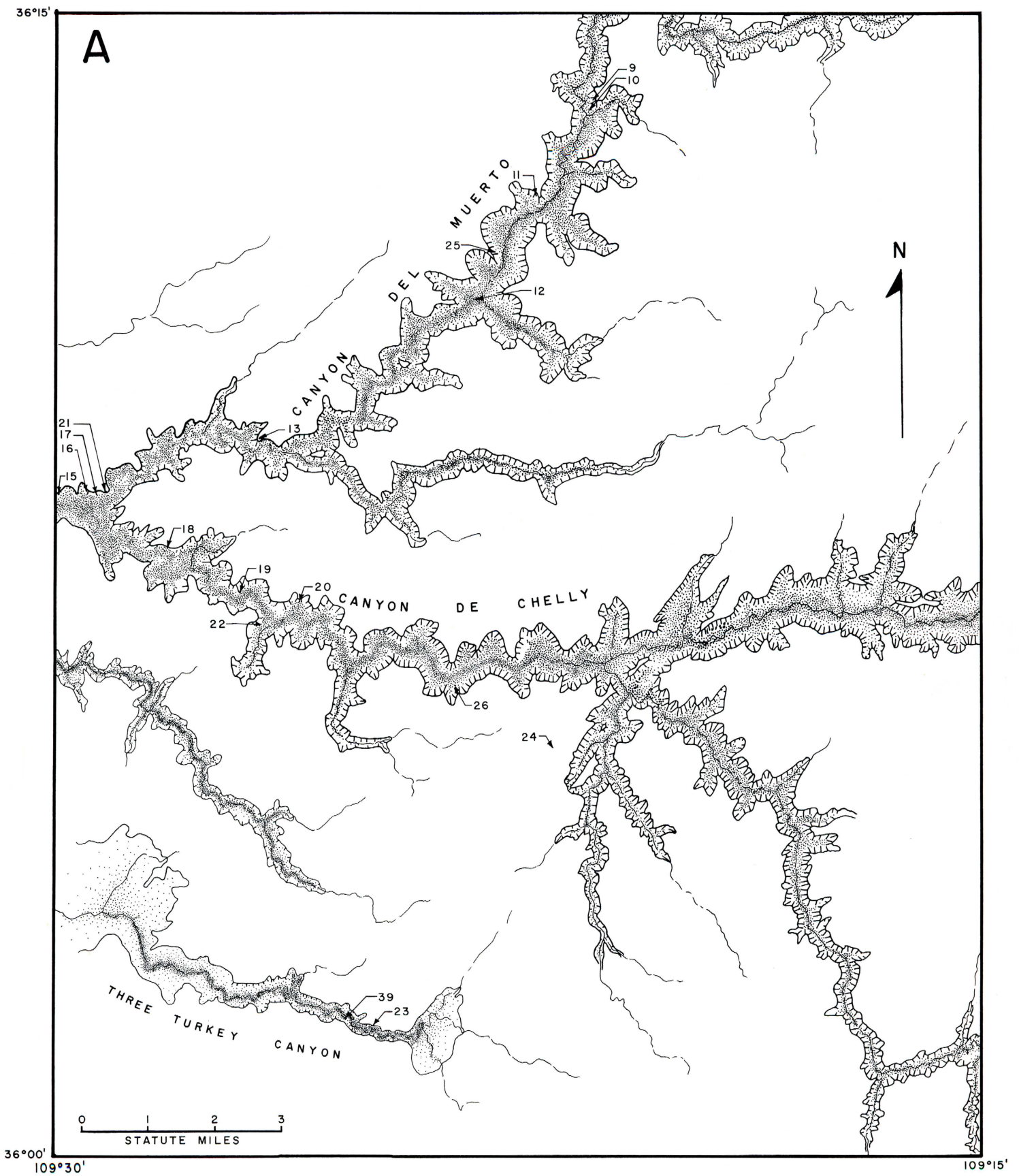
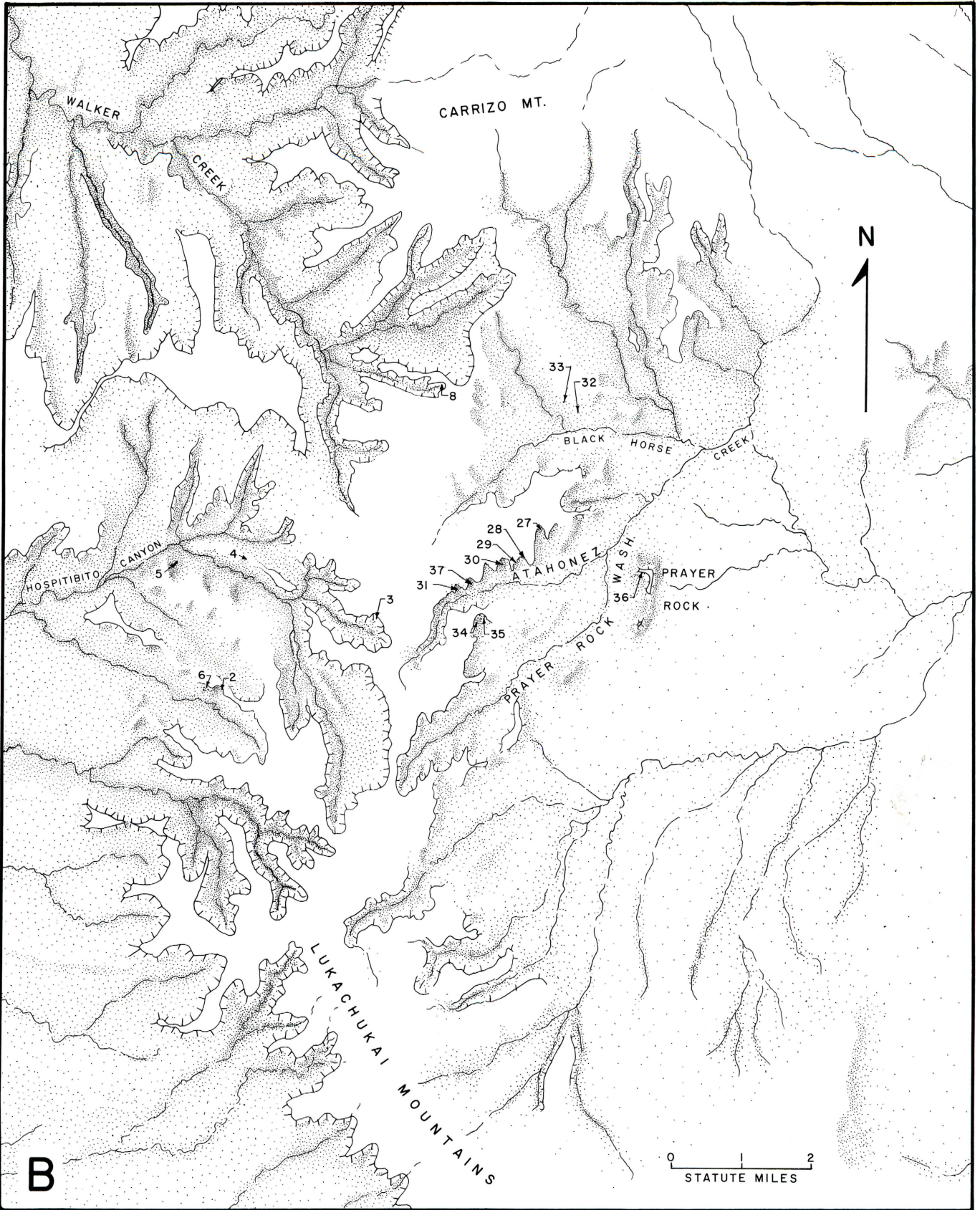


Figure 2. Location of Sites in the Canyon de Chelly Area

36°45'



36°30'  
109°22'30"

109°07'30"

Figure 3. Location of Sites in the Red Rock Area



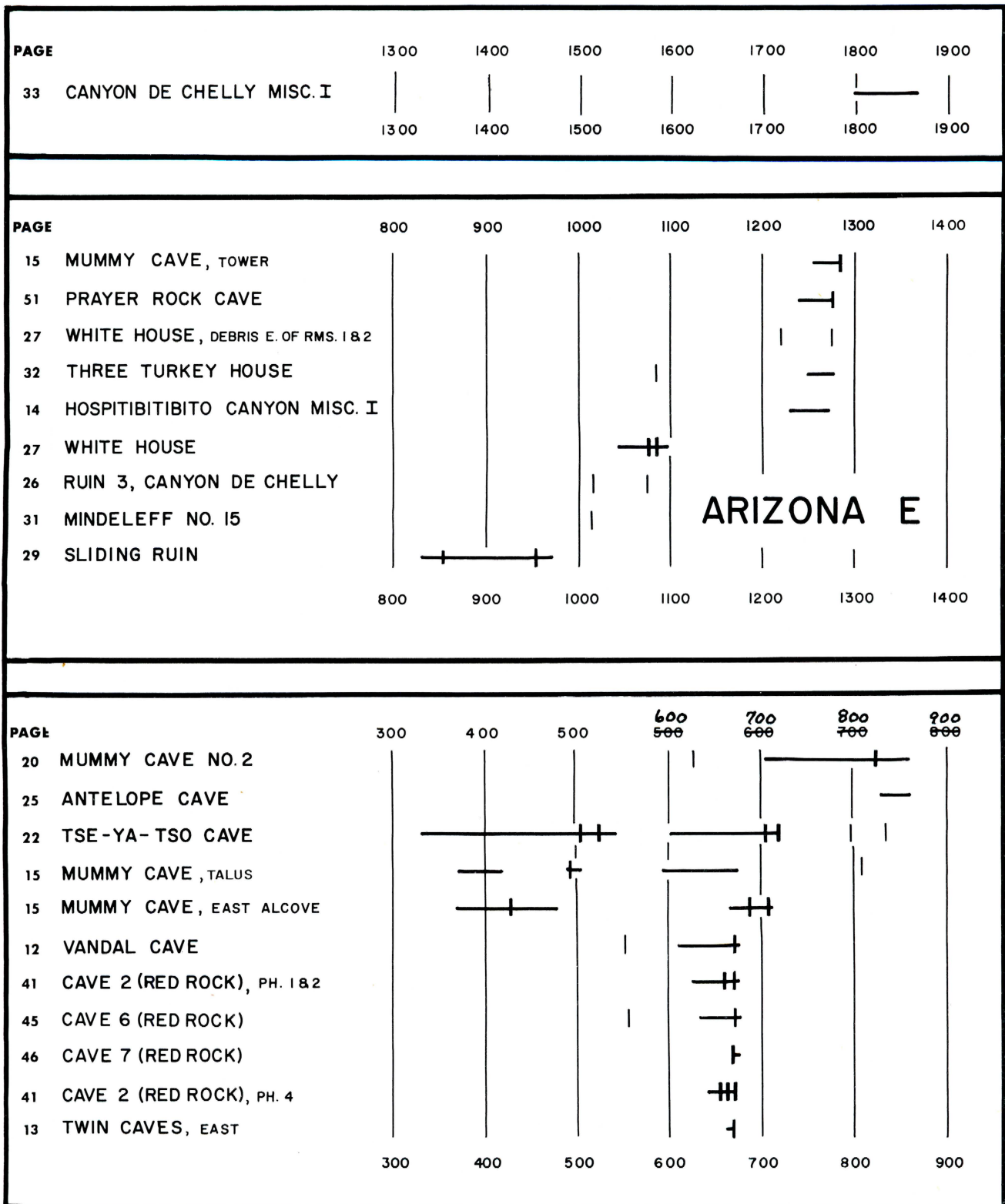


Figure 4. Sequence of Chronological Components in Arizona E. Horizontal lines indicate total range of outside dates. Narrow vertical indicate single outside dates. Wide vertical bars indicate substantial clusters of dates in relation to total range and number of dates.

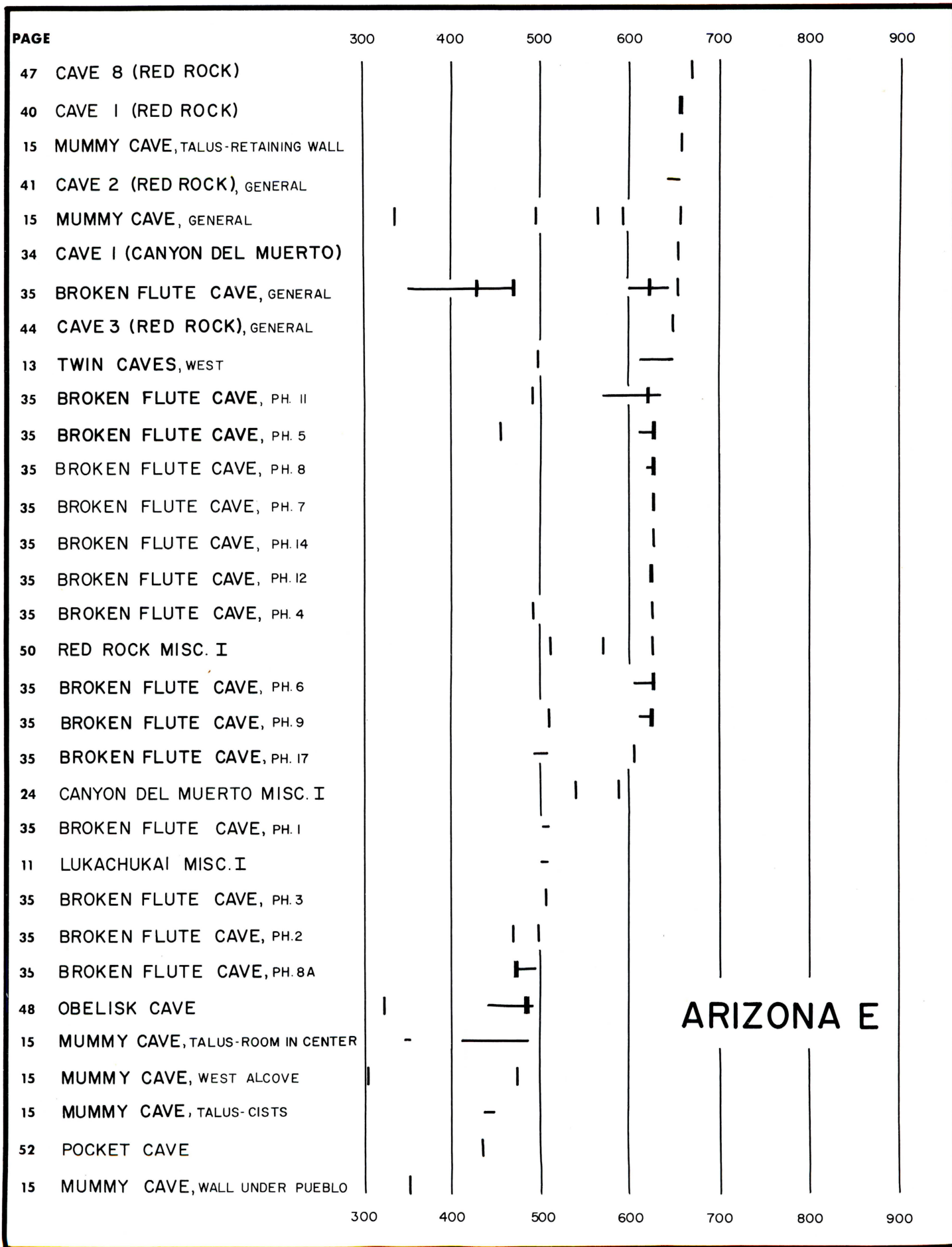


Figure 4, continued



Lukachukai, Misc. No. I

MAP REFERENCE: 1 (Fig. 1)

ALTERNATE NAME/NUMBER: None known

LOCATION:

1-1/2 miles southeast of Lukachukai Trading Post.

DESCRIPTION:

Basketmaker III ?

SOURCE OF COLLECTION:

Collected by Earl H. Morris for Gila Pueblo in 1935.

REFERENCES:

Site Description: None

Published Dates: None

DATES:

GP-1084	439p	-	497r
GP-1085	414p	-	506vv
GP-1088	462 <sup>+</sup> p	-	506r

COMMENT:

The dates indicate an occupation at about A.D. 500.

Vandal Cave

MAP REFERENCE: 2 (Fig. 3)

ALTERNATE NAME/NUMBER: Canyon de Chelly 7:11 (GP), Arizona E:7:1(ASM),  
NA 7422

LOCATION:

Due east of Los Gigantes Buttes on the western side of the Lukachukai Mountains, Apache County, Arizona. Cave faces southwest from north wall of a SE-NW running tributary of the central branch of Hospitibito Canyon, a tributary of the Chinle Wash.

DESCRIPTION:

A Basketmaker III occupation, including three circular pithouses associated with early ceramics, corn, the bow and arrow, perishable remains, and seven dolichocephalic mummies and skeletons, is overlain by traces of later slabhouse construction. Superimposed is a late six room masonry pueblo with four associated burials, characterized by pottery and material culture analogous to those in the Mesa Verde and Tsegi Canyon areas.

SOURCE OF COLLECTION:

Made for Gila Pueblo by Emil W. Haury and Earl H. Morris in 1936.

REFERENCES:

Site Description: Haury 1936

Published Dates: Haury 1938; Smiley 1951

DATES:

General

GP-971 304p - 549+<sup>+</sup>vv

GP-978 468fp - 608v

GP-972 562p - 672cL

GP-973 573<sup>+</sup>p - 672r

GP-975 588 - 678v

GP-976 605p - 683r

COMMENT:

The dates are apparently from the Basketmaker occupation which can be placed in the late 600's.

Twin Caves

MAP REFERENCE: 3 (Fig. 3)

ALTERNATE NAME/NUMBER: Canyon de Chelly 7:12 (GP)

LOCATION:

On the western side of the Lukachukai Mountains, Apache County, Arizona. Cave is at the head of the central fork of Hospitibito Canyon, a tributary of Chinle Wash.

DESCRIPTION:

Both east and west caves contain perishable materials. The east cave contains at least one Basketmaker III house.

SOURCE OF COLLECTION:

Emil W. Haury and Earl H. Morris excavated a Basketmaker III house in search for datable wood in 1936.

REFERENCES:

Site Description: None

Published Dates: Haury 1938; Smiley 1951

DATES:

East Cave

GP-980	595p - 661rL	GP-984	629p - 667r
GP-989	416+p - 663+vv	GP-986	435+p - 667r
GP-981	631p - 667r	GP-987	584p - 667r
GP-982	470p - 667r	GP-990	594p - 667c
GP-983	606p - 667v	GP-992	601p - 667r
		GP-993	557p - 667v

West Cave

GP-994	200+p - 499+vv
GP-995	443p - 611+v
GP-997	415+p - 647G

COMMENT:

Both caves fall within the Basketmaker III time range. Specimens from the East cave pithouse cluster at 667 A.D. The early date from the West cave probably may be interpreted as a reused timber.

Hospitibito Canyon - Misc. I

MAP REFERENCE: 5 (Fig. 3)

ALTERNATE NAME/NUMBER: None known

LOCATION:

On the western side of the Lukachukai Mountains, Apache County, Arizona. In Hospitibito Canyon, a tributary of the Chinle Wash.

DESCRIPTION:

Unknown cave or caves

SOURCE OF COLLECTION:

Collected by Earl H. Morris of the Bernheimer Expedition of the American Museum of Natural History in 1930.

REFERENCES:

Site Description: None

Published Dates: Douglass 1938; Smiley 1951

DATES:

MLK-268	986fp - 1229v
MLK-274	1131p - 1245v
MLK-273	1041fp- 1271v

COMMENT: None



## Mummy Cave

MAP REFERENCE: 9 (Fig. 2)

ALTERNATE NAME/NUMBER: Canyon de Chelly 15:20 (GP), NA 2186,  
Tse-i-ya-kin, Tower House

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona.  
Cave is in east wall of Canyon del Muerto about 10 miles upstream  
from the confluence of Canyons de Chelly and del Muerto.

DESCRIPTION:

The cave consists of two large alcoves connected by a ledge about 110' long. They are about 80 feet above the natural talus slope and some 300 feet above the stream bed. Culture-bearing debris falls continuously from the cave over the top of the natural talus to the canyon floor. The western alcove is about 100 feet across and 75 feet deep. The eastern portion is over 200 feet across and 100 feet deep.

Both alcoves and the bench hold Pueblo III masonry structures with Mesa Verde affiliations. The western alcove contains about 20 rooms and one possible kiva. The eastern alcove contains about 50 rooms and three circular kivas. One of these has an alcove, bench, pilasters and ventilator shaft. Another has only the ventilator.

There are seven Pueblo III rooms on the bench. Most of these were more than one story in height and the easternmost is a three story tower. These rooms are about 20 feet wide from front to back and 10-15 feet wide. They are solidly constructed with walls nearly two feet thick. Groups of wooden prayer sticks were set in the wall joints of the tower and others were laid beside each of the main roof timbers. The roof of the tower has a parapet.

No pithouses were found under the Pueblo III rooms in the alcoves but there were slab-lined houses on the bench. These were buried by a rock-fall whose upper surface was made level with stones, timbers and earth to provide a smooth floor for the overlying Pueblo III rooms and tower. To further increase the floor space of the bench, a retaining wall was built as far out on the cliff as possible and the space behind it was filled.

High in the culture-bearing talus slope were at least two, probably many more, roughly made circular houses, 12 to 25 feet in diameter. They had walls of sandstone slabs or posts set leaning inwards, plastered with mud and roofed with logs covered with earth. One burned house had several pottery vessels, charred baskets, sandals and planting sticks near a sunken hearth. These houses were built on terraces formed by retaining walls of cribbed logs, stones and brush set into the talus. Nearly three-quarters of this talus was protected by the overhanging cliff which protected the perishable

Mummy Cave, continued

remains. As houses became buried under trash, others were built at a higher level. Each of these houses was surrounded by a number of storage bins. These were of irregular shape and depth, and were two to six feet in diameter. They were lined with large thin slabs set on edge, the cracks and joints being sealed with mud reinforced with shredded bark, reed leaves or corn husks. Two had roofs in place consisting of jug-like necks of adobe reinforced with sticks and covered with circular slabs. Some of the cists held corn, gourds and seeds. In every respect these dwellings and cists fit the description for a Basketmaker III occupation. The precise association of the numerous tree-ring dates is occasionally to a house or cist structure, some of which may date to Basketmaker II times.

SOURCE OF COLLECTION:

J.A. Jeancon for the First Beam Expedition, 1923  
Earl H. Morris of the American Museum of Natural History for the  
Laboratory of Tree-Ring Research 1923-27, 1932.  
Deric O'Bryan for Gila Pueblo, 1940.

REFERENCES:

Site Description: Mindeleff 1897; Morris, A.A., 1933; Morris, E.H.,  
1925, 1938, 1941; Kidder 1927

Published Dates: Peterson 1935; Douglass 1935, 1936, 1938;  
Schulman 1949, 1952; Smiley 1951.

DATES:

Talus Slope, room in center

M-106	261p	- 348c
M-105	270p	- 353B
M-102	351p	- 410c
M-109	374p	- 439vv
M-101	378p	- 485r

Talus Slope, Post Basket Maker cists

M-142	354p	- 433vv
M-141	336p	- 441v

Talus Slope, retaining wall

M-139	515+p	- 658r
-------	-------	--------

Muramy Cave, continued

Talus Slope, general

M-136	340p - 380c	M-117	340p - 502v
M-119	348p - 413rG	M-135	550p - 591c
BE-33	389p - 485v	M-126	567p - 644r
M-129	409p - 486vv	M-147	475 <sup>+</sup> p - 649c
M-125	308 <sup>+</sup> p - 489 <sup>+</sup> tv	M-137	510 <sup>+</sup> p - 657r
M-166	354p - 493v	M-145	495p - 667c
M-118	395p - 496v	M-128	489p - 678 <sup>+</sup> BG
		BE-32	715p - 804L

Wall in center of cave under cliff house level

M-143            91p - 358cBG

East Alcove, Post Basket Maker cists

M-159	190 - 367 <sup>+</sup> v	M-164	494p - 677v
M-149	271p - 427 <sup>+</sup> v	M-162	617p - 680r
M-152	203p - 430 <sup>+</sup> rG	M-151	647p - 684cL
M-163	622p - 666r	M-160	532p - 702LG
		M-155	648p - 703c

East Alcove, general

GP-2983	294p - 426vv
GP-2973	273p - 466vv
GP-2953	300 - 470G
GP-3002	612p - 670vv
GP-2995	594p - 691r

West Alcove, general

GP-2997	59p(BC) - 306G
GP-2998	425p - 474rG

General

GP-2974	153fp - 337vv	GP-2990	409fp - 537vv
GP-3035	352p - 413cG	GP-3017	519p - 552vv
GP-2991	373p - 430r	GP-2986	520fp - 564vv
M-195	371fp - 437vv	GP-2993	484p - 575vv
GP-3032	406fp - 444v	GP-3022	512fp - 587r
GP-2999	437fp - 474vv	GP-2987	547p - 594vv
GP-3036	348p - 492v	GP-2966	484p - 656Lc
GP-3018	295 - 494vv	GP-3029	597p - 666r
M-190	238p - 496r	GP-3016	568fp - 671vv
		GP-3021	489p - 747 <sup>+</sup> vv



Mummy Cave, continued

Tower, floor

BE-34	1129p - 1268vv
BE-36	1192p - 1271vv
BE-35	1146p - 1278v

Tower, main door

M-97	1238p - 1270v
M-96	1231p - 1277v
M-98	1232p - 1279v

Tower, support for 1st ceiling

M-92	1129p - 1253v
M-95	1210p - 1272v
M-93	1176p - 1272B
M-94	1241p - 1282v

Tower, support for 2nd ceiling

M-73	1230p - 1277v	M-70	1244p - 1284v
M-72	1229p - 1283v	M-71	1233p - 1284v
M-65	1243p - 1284v	M-74	1244p - 1284v
M-66	1245p - 1284v	M-75	1234p - 1284v
M-67	1227p - 1284v	M-76	1246p - 1284v
M-68	1229p - 1284v	M-77	1242p - 1284v
M-69	1242p - 1284v	M-78	1255p - 1284v
		M-79	1252 - 1284v

Tower, support for 3rd ceiling

M-90	1205p - 1279v	M-85A	1224p - 1283v
M-91	1202p - 1280v	M-81	1249p - 1284v
M-88	1220p - 1281v	M-82	1254p - 1284v
M-89	1244p - 1282v	M-85B	1229p - 1284v
M-83	1240p - 1283v	M-86	1232p - 1284v
		M-87	1239p - 1284v

COMMENT:

Dates for the Pueblo III tower cluster closely at and just before A.D. 1284 clearly indicating the time of its construction. The fact that only one of these is a cutting date and possibly the fact that a range of dates exists at all is explained by the fact that all specimens were collected with a borer and present a very small outside surface.

Mummy Cave, continued

All specimens from the east and west alcoves date between A.D. 306 and 703. These include cutting dates at A.D. 306, 430, 470, 474, 666, 680, 684, 691, 702 and 703. Some of these were obtained from "Post Basket Maker" cists with cutting dates at A.D. 430, 666, 680, 684, 702 and 703. Following the terminology in use at the time, some or all of these are probably Basketmaker III structures with some reuse of timbers. In so far as any of these early dates were derived from Pueblo II or Pueblo III structures they are undoubtedly reused timbers. Otherwise, they are remains of Basketmaker structures in the talus slopes or the alcoves. A single specimen cut in A.D. 358 is described as coming from a "wall in the center of the cave under the cliff house level."

Most of the dates from the talus slope range from A.D. 348 to 678. There is one date at A.D. 804. Cutting dates fall at A.D. 348, 353, 380, 410, 413, 485, 591, 644, 649, 657, 658, 667, 678 and 804. Five specimens, including four cutting dates, ranging from A.D. 348 to 485 come from a room in the center of the talus slope. A "Post Basket Maker" cist in the talus provided non-cutting dates at A.D. 433 and 441. A single cutting date, described as coming from a retaining wall in the talus falls at A.D. 658.

This is interpreted to mean that there was a continuous sequence of building in Mummy Cave, between about A.D. 300 and 700. The published descriptions support the presence of Basketmaker II and Basketmaker III, as well as Pueblo II and Pueblo III occupation in the site. In all likelihood there was a continuous occupation for nearly 1000 years in Mummy Cave.

Mummy Cave No. 2

MAP REFERENCE: 10 (Fig 2)

ALTERNATE NAME/NUMBER: Canyon de Chelly 15:23 (GP)

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona.  
Located 300 yards south of Mummy Cave in Canyon del Muerto.

DESCRIPTION:

A cave with at least two pithouses. Perishable materials were present. Ceramics include Lino Black-on-gray and Kana-a Black-on-white.

SOURCE OF COLLECTION:

E.H. Morris for the Laboratory of Tree-Ring Research, 1927  
Deric O'Bryan for Gila Pueblo, 1940

REFERENCES:

Site Description: Gladwin 1948.

Published Dates: Schulman 1949 (Two dates incorrectly listed as coming from Del Muerto Cave 1).

DATES:

South "Pre-kiva"

M-175        667p - 749cGB  
M-176        705p - 828cLB

North "Pre-kiva"

M-179        589p - 703G  
M-180        540p - 786+rB  
M-181        625p - 798GB  
M-177        799p - 822cL

General

GP-3038	477p - 624+vv	M-168	750p - 821cL
M-183	599p - 772cL	M-170	782p - 822cL
GP-3055	757p - 821rL	M-169	757p - 829vv
GP-3057	758p - 821r	GP-3056	806p - 859v



Mummy Cave No. 2, continued

COMMENT:

The range of cutting dates and lack of excavation data makes pertinent comment rather tenuous. Possibly this is one of the few dated Pueblo I sites in the canyon.

Tse-ya-tso Cave

MAP REFERENCE: 11 (Fig. 2)

ALTERNATE NAME/NUMBER: Tseahatso, Se-ha-tso, Big Cave, Great Cave,  
Cave of the Winds, Canyon de Chelly 15:19 (GP)

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona.  
Cave is three miles downstream from Mummy Cave in Canyon del  
Muerto. It faces south and lies behind a thin leaf of rock ex-  
tending out from the cliff.

DESCRIPTION:

This cave is 1200 feet long and 30-70 feet wide. It was extensively  
sampled by Earl H. Morris of the American Museum of Natural History.  
There is a single small masonry structure near the back wall and  
extensive sub-surface Basketmaker occupation. Large quantities of  
perishable goods and burials were recovered. Many Basketmaker II  
pole and slab houses "similar to those found in the slopes of Mummy  
Cave" were found. At least one circular slab-lined room was par-  
titioned into quadrants by cross walls. Storage cists were numerous  
and many turkey pens were noted behind the houses.

SOURCE OF COLLECTION:

Deric O'Bryan for Gila Pueblo in 1940

REFERENCES:

Site Description: A.A. Morris 1933

Published Dates: None

DATES:

SE end of cave, Basketmaker III (?) bench rafter

GP-3088 323 - 443++vv

SE end of cave

GP-3089 183 - 331vv

Basketmaker pit, loose

GP-3092 239p - 421vv

GP-3090 359p - 477++vv

GP-3091 355p - 506vv

Tse-ya-tso Cave, continued

West side of cave

GP-3129 375<sup>±</sup>p - 504r  
 GP-3117 623p - 709v

Upright

GP-3116 602p - 655vv

General

GP-3110	260p	-	375 <sup>±</sup> +cB	GP-3124	566p	-	657rL
GP-3137	328	-	381v	GP-3125	569p	-	667vv
GP-3108	282p	-	420 <sup>±</sup> +vv	GP-3126	516p	-	668v
GP-3120	357p	-	448+cGB	GP-3079	571p	-	700v
GP-3130	310p	-	450 <sup>±</sup> +v	GP-3077	567 <sup>±</sup> p	-	701v
GP-3133	281p	-	475rG	GP-3103	581	-	701vv
GP-3131	320 <sup>±</sup> p	-	501vv	GP-3084	661p	-	712 <sup>±</sup> v
GP-3112	394p	-	504r	GP-3083	626p	-	715v
GP-3122	479	-	523vv	GP-3085	553p	-	715r
GP-3113	478p	-	525v	GP-3086	628p	-	715vv
GP-3109	393 <sup>±</sup> p	-	527rB	GP-3121	673p	-	716c
GP-3118	444p	-	543 <sup>±</sup> +vv	GP-3119	759p	-	799r
GP-3127	533p	-	600r	GP-3111	743p	-	835v
GP-3101	555p	-	607r				

COMMENT:

Dates from the cave as a whole range from A.D. 331 to 835 with only two dates after A.D. 716. Cutting dates are at A.D. 375, 448, 475, 2 at 504, 527, 600, 607, 657, 715, 716 and 799. One specimen dating A.D. 443 is described as a Basketmaker III pithouse "bench rafter." Three dates ranging from A.D. 421 to 506 are designated as being from a Basketmaker pit. Not much more can be stated other than that the numerous specimens from a relatively limited time span confirm the intensive occupation of the site in Basketmaker times.



Canyon del Muerto - Misc. I

MAP REFERENCE: 12 (Fig. 2)

ALTERNATE NAME/NUMBER: No known alias

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona.

DESCRIPTION:

None.

SOURCE OF COLLECTION:

The specimens were collected by the 1930 Bernheimer Expedition, probably by Earl H. Morris of the American Museum of Natural History.

REFERENCES:

Site Description: None

Published Dates: None

DATES:

MLK-275	493fp - 535vv
MLK-277	431p - 587rL

COMMENT:

None

Antelope Cave

MAP REFERENCE: 13 (Fig. 2)

ALTERNATE NAME/NUMBER: Antelope House, Canyon de Chelly 15:10 (GP)

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona. Cave is three miles upstream from the mouth of Canyon del Muerto in the northwest wall.

DESCRIPTION:

Site contained more than 50 Pueblo III rooms including a four-story tower. These are now badly damaged by erosion. There is some preservation of perishable materials inside and on the talus slope. A row of huge realistic multi-color antelope have been painted by a Navajo Indian on the cliff above the ruin.

SOURCE OF COLLECTION:

1st Beam Expedition, 1923  
Earl H. Morris for the Laboratory of Tree-Ring Research, 1926  
H.S. Gladwin for Gila Pueblo, 1931  
Deric O'Bryan for Gila Pueblo, 1940

REFERENCES:

Site Description: Mentioned in Bernheimer 1924 and A.A. Morris 1933

Published Dates: None

DATES:

GP-3076 717p - 829r  
GP-3075 787p - 838v

COMMENT:

There is a possibility of an earlier occupation under the Pueblo III remains.

Ruin 3 (Canyon de Chelly)

MAP REFERENCE: 17 (Fig. 2)

ALTERNATE NAME/NUMBER: Canyon de Chelly 15:26 (GP)

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona.  
At confluence of Canyon de Chelly and Canyon del Muerto.

DESCRIPTION:

A ruin with at least one kiva.

SOURCE OF COLLECTION:

Deric O'Bryan for Gila Pueblo.

REFERENCES:

Site Description: None

Published Dates: None

DATES:

GP-3140 890p - 1012vv

COMMENT:

None.



White House

MAP REFERENCE: 18 (Fig. 2)

ALTERNATE NAME/NUMBER: NA 2187, Canyon de Chelly 15:6 (GP), Arizona E:  
15:6 (GP), Arizona E:15:1 (ASM), Kini-nae-kai

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona.  
Site is located on north side of Canyon de Chelly about 1 mile up-  
stream from the confluence of Canyon de Chelly and Canyon del Muerto.

DESCRIPTION:

A large masonry pueblo with about 45-60 rooms on bottom land next to the cliffs and about 20 rooms in a cave some 35 feet up in the canyon wall. The postulated height of the lower group is four stories which would bring the roofs to the height of the cliff dwelling rooms. There is one circular kiva in the lower cluster. It was built as a circle enclosed in a rectangular room, the corners of which were solidly filled. The rooms around and east of the kiva have thick ground floor walls. Where a second story exists the walls are thinner and set back some 5-6 inches. There is at least one T-shaped doorway. Many adobe walls and partitions have been added adjacent to and above stone walls. Four of these are "chimney-like" structures which led Mindeleff to infer Spanish colonial occupation. The walls of the White House itself are 12 feet high in front, 7 feet high on the sides and back, and 2 feet thick. The exterior is finished with a coat of whitewash with a decorative band of yellow.

SOURCE OF COLLECTION:

J.A. Jeancon of the First Beam Expedition, 1923  
Earl H. Morris for the Laboratory of Tree-Ring Research, 1925-27  
Gila Pueblo expeditions, 1931, 1940

REFERENCES:

Site Description: Mindeleff 1897  
Published Dates: Douglass 1935, 1938; McGregor 1938; Peterson 1935;  
Schulman 1949; Smiley 1951

DATES:

All dates are from the lower ruin.

First Story, Door C

M-22            1016p - 1066v

White House, continued

First Story, Door D

M-24 1017p - 1072rL  
M-23 1013p - 1074v

First Story, Door F

M-28 1024p - 1045r  
M-31 1047p - 1071v  
M-27 1023p - 1075rL  
M-33 1058p - 1080r

First Story, Room 11, ceiling

KL-25/27 826p - 1060vv  
N-372 936p - 1068vv

First Story, Room 4, ceiling

N-373 945p - 1075rL

Under west door

M-41 968p - 1057+vv  
M-40 1048p - 1086vv

Under west wall

WH-1 943p - 1076vv  
GP-405 982 - 1076v  
M-7 1064p - 1084cL  
M-45 1015p - 1087v

Debris east of Rooms 1 and 2

N-374 1063p - 1096r  
N-377 1104p - 1219rG  
N-378 1218p - 1276cL

Second Story, Door A

M-9 1045p - 1075rL  
M-12 1054p - 1075r

General

BE-44 1017p - 1050vv  
M-5 1055p - 1075r  
BE-43 972 - 1082r  
M-1 1039p - 1084cL

COMMENT:

There are no tree-ring dates from the upper ruin. Dates from the lower ruin range between A.D. 1050 and 1276 with only two dates after 1096. This includes 1 cutting date at A.D. 1045, 1 at 1072, 5 at 1075, 1 at 1080, 1 at 1082, 2 at 1084, 1 at 1096, 1 at 1219 and 1 at 1276. This is interpreted to mean that most of the lower ruin was built shortly after A.D. 1070 and that there was some increment in the thirteenth century.

## Sliding Ruin

MAP REFERENCE: 20 (Fig. 2)

ALTERNATE NAME/NUMBER: Canyon de Chelly 15:21 (GP), Mindeleff No. 32

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona. Cave is on the north wall of Canyon de Chelly about 3+ miles upstream from the confluence of Canyons de Chelly and del Muerto.

DESCRIPTION:

A masonry pueblo with 30-50 rooms, some with 2 or 3 stories. There are 3 circular kivas. There is some Basketmaker III and Pueblo I material present.

SOURCE OF COLLECTION:

J.A. Jeancon for the First Beam Expedition, 1923  
Earl H. Morris for the Laboratory of Tree-Ring Research, 1927  
Deric O'Bryan for Gila Pueblo, 1940

REFERENCES:

Site Description: Mindeleff 1897

Published Dates: Douglass 1935, 1938; Peterson 1935;  
Schulman 1949; Smiley 1951

DATES:

Front center of ruin, logs in buttress

M-55	846p - 936r
M-52	875p - 957+r
M-51	935p - 986r

West center of ruin

M-57	768p - 834vv
------	--------------

East end of ruin

M-61	796p - 856v
------	-------------

East end of cave

GP-3149	735p - 829vv
BE-39	845p - 943rL
BE-38	835p - 957r
GP-3158	935p - 983rG



Sliding Ruin, continued

COMMENT:

Dates range from A.D. 829 to 986 with cutting dates at A.D. 936, 943, 2 at 957, 983 and 986. The Pueblo construction either began before A.D. 1000 or made use of timbers cut for earlier building.

Mindeleff No. 15

MAP REFERENCE: 21 (Fig. 2)

ALTERNATE NAME/NUMBER: None

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona. Cave is in a large bay in the north wall of the canyon just at the confluence of Canyon de Chelly and Canyon del Muerto.

DESCRIPTION:

A small masonry pueblo with about 10 rooms, one circular kiva and a possible rectangular kiva.

SOURCE OF COLLECTION:

J.A. Jeancon for the First Beam Expedition, 1923.

REFERENCES:

Site Description: Mindeleff 1897

Published Dates: Douglass 1935, 1938; Peterson 1935; Smiley 1951

DATES:

Tower, west side

BE-37 883p - 1012v

COMMENT:

None.

Three Turkey House

MAP REFERENCE: 23 (Fig. 2)

ALTERNATE NAME/NUMBER: NA 1747, NA 3467, Arizona E:15:11 (ASM)

LOCATION:

In Three Turkey Canyon, a tributary of the Chinle Wash, Apache County, Arizona. This is the next drainage south from Canyon de Chelly. Longitude approximately: 109°25'30"W. Latitude approximately: 36°3'30"N.

DESCRIPTION:

A well-preserved cliff-dwelling with 18 to 20 rooms and at least one circular kiva. Sherds mostly Pueblo III.

SOURCE OF COLLECTION:

H.S. Colton and Milton Wetherill for the Museum of Northern Arizona in 1938.

REFERENCES:

Site Description: Colton 1939a, 1939b

Published Dates: Colton 1939a; Smiley 1951

DATES:

Kiva, beam 2

F-4392 1182 - 1266rB

Room 15

TTH-3 1046p - 1083vv  
TTH-5 1157p - 1246+rL  
TTH-7 1231p - 1266cL  
F-4993 1188 - 1276r

COMMENT:

All except one of these dates confirms the building of the cliff house in the middle of the thirteenth century.



Canyon de Chelly, Misc. I

MAP REFERENCE: 24 (Fig. 2)

ALTERNATE NAME/NUMBER: Hogan 1, Group 1; Hogan 6, Group 3

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona,  
along Spider Rock Road.

DESCRIPTION:

These are Navajo Hogans. Gobernador Polychrome was found in asso-  
ciation with Hogan No. 1, Group 1.

SOURCE OF COLLECTION:

Made by Charles D. Wyatt, U.S. National Park Custodian in 1941 and  
1942.

REFERENCES:

Site Description: None

Published Dates: None

DATES:

Hogan 1, Group 3

GP-4240	1610p - 1794vv
GP-4241	1631p - 1819+vv
GP-4242	1593p - 1846vv
GP-4243	1617p - 1853+vv
GP-4244	1639p - 1855vv
GP-4245	1598p - 1858vv
GP-4239	1668p - 1864+vv

Hogan 6, Group 3

CDC-7	1614p - 1813vv
-------	----------------

COMMENT:

None.

Cave 1 (Canyon del Muerto)

MAP REFERENCE: 25 (Fig. 2)

ALTERNATE NAME/NUMBER: Canyon de Chelly 15:22 (GP)

LOCATION:

In Canyon de Chelly National Monument, Apache County, Arizona. Cave is in the west side of Canyon del Muerto, 1 mile south of Tse-ya-tso Cave. It is north of the horse trail to the west rim of Canyon del Muerto.

DESCRIPTION:

This is a two story cliff-dwelling, with more than 30 rooms. Potsherds indicate affiliations with the Kayenta, Chaco and Mesa Verde branches. There are some indications of Basketmaker III and Navajo remains.

SOURCE OF COLLECTION:

Deric O'Bryan for Gila Pueblo, 1940.

REFERENCES:

Site Description: None

Published Dates: None

DATES:

GP-3074 583p - 655vv

COMMENT:

None.

Broken Flute Cave

MAP REFERENCE: 27 (Fig. 3)

ALTERNATE NAME/NUMBER: Owl Head Cave, Canyon de Chelly 8:3 (GP),  
Arizona E:8:1 (ASM)

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is in the head of the easternmost tributary on the north side of Atahonez Wash which is a western tributary of Prayer Rock Wash which drains into the Red Wash that runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

A very large cave at the top of the talus slope. It contains at least 17 Basketmaker pithouses, more than 50 storage cists, and a possible great kiva. Superimposed on these are a dozen or so Pueblo and Navajo cists and store rooms. Ceramic materials include Lino Gray, Obelisk Gray, La Plata Black-on-white, a little polished red ware and a considerable amount of fiber-tempered basket-impressed unfired ware. A small amount of Pueblo II and Pueblo III Black-on-white ceramics was found.

SOURCE OF COLLECTION:

Tested by the Bernheimer Expedition of the American Museum of Natural History in 1930.

Systematic excavations and tree-ring collections made by Earl H. Morris of the Carnegie Institution of Washington in 1931.

Earl H. Morris and Emil W. Haury for Gila Pueblo in 1936.  
Deric O'Bryan for Gila Pueblo in 1948.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936

Published Dates: Douglass 1936, 1938; Haury 1938; Schulman 1949;  
Smiley 1951

DATES:

Room 1

MLK-126 287p - 501rB  
MLK-245 330p - 508rLG



Broken Flute Cave, continued

Room 2

MLK-244 266+p - 468+r  
 GP-920 421p - 499cLGB

Room 3

MLK-226 380p - 505v

Room 4

MLK-103 422p - 491rLGB  
 MLK-99 552p - 628rB

Room 5

GP-887 312p - 457+G  
 MLK-93 560p - 609vv  
 MLK-88 564p - 628v  
 MLK-92 600 - 629r  
 MLK-142 541p - 629cB

Room 6

MLK-222-2	544 - 602vv	MLK-80	574p - 623v
MLK-77	572p - 606vv	MLK-84	580p - 623v
MLK-78	553p - 613vv	MLK-85	548p - 623r
MLK-76	582p - 622vv	MLK-127	521p - 623cL
MLK-87	581p - 622rL	MLK-131	580p - 623cL
MLK-134	583p - 622cL	MLK-133	586p - 623rL
MLK-73	590p - 622cB	MLK-135	548p - 623cLB
MLK-75	571p - 623v	GP-885	583p - 627r

Room 7

GP-6691	532p - 623cB	GP-6690	593p - 625v
GP-879	537p - 624rB	MLK-140	605p - 625r
GP-875	525p - 625cL	MLK-137	567p - 625cL
GP-876	500p - 625rLB	MLK-51	560p - 626r

Room 8

MLK-64 589p - 618vv  
 MLK-65 433p - 624v  
 GP-874 567p - 624v  
 MLK-67 591p - 625v  
 GP-872 526p - 625rB  
 MLK-66 583p - 627cL

Broken Flute Cave, continued

Room 8A

GP-866 283p - 469rL  
 GP-868 371p - 469v  
 GP-871 296p - 470rL  
 GP-870 376p - 493v  
 GP-869 359tp - 494rG

Room 9

MLK-174	404	-	515 <u>t</u> v	MLK-164	566p	-	624rL
GP-848	433p	-	611 <u>+</u> HGB	MLK-165	570p	-	624cLB
GP-849	468p	-	613v	MLK-167	442 <u>t</u> p	-	624rL
GP-853	556p	-	623rL	MLK-169	540p	-	624rL
MLK-175	587p	-	623rL	MLK-171	547p	-	624rL
MLK-173	529p	-	623rL	MLK-176	527p	-	624L
MLK-170	512 <u>t</u> p	-	623c	GP-854	547p	-	624rLB

Room 11

MLK-144	385 <u>t</u> p	-	491r	GP-859	537p	-	621rB
MLK-147	416p	-	568 <u>+</u> <u>t</u> v	GP-6686	544p	-	625cL
GP-860	423 <u>t</u> p	-	574vv	GP-6683	519p	-	635 <u>+</u> <u>r</u> G
MLK-145	407p	-	619 <u>+</u> v				

Room 12

GP-865 389tp - 621B  
 MLK-55 567p - 623vv  
 MLK-59 568p - 623rL  
 MLK-62 575p - 623r  
 MLK-179 534p - 623L  
 MLK-178 558p - 623cL

Room 14

GP-855 587p - 627v

Room 17

GP-1426 306p - 489rL  
 GP-912 316p - 505r  
 MLK-266 559p - 605rL

General

MLK-254	314	-	354vv	GP-891	331p	-	474B
MLK-118	305	-	378v	MLK-109	460p	-	597cB
MLK-105	266p	-	430B	MLK-111	526p	-	612 <u>+</u> cB
MLK-117	277p	-	437 <u>+</u> <u>t</u> vv	MLK-94	541p	-	622cB
MLK-110	199p	-	474vv	GP-901	430 <u>t</u> p	-	623cB

Broken Flute Cave, continued

General, continued

MLK-114	502 <sup>+</sup> p - 623cB	MLK-269	457 <sup>+</sup> p - 625rG
MLK-272	558p - 624rLG	MLK-124	358 <sup>+</sup> - 637rB
MLK-264	572p - 625cL	MLK-247	458 - 652v

COMMENT:

Ninety-four dates from Broken Flute Cave range from A.D. 354 to 652. This includes two major groups of dates, the earlier with fourteen cutting dates ranging from A.D. 430 to 508, and the later with 51 cutting dates ranging from A.D. 597 to 637. Emphasizing the groupings is the fact that there are only three specimens, all without cutting dates, which date between A.D. 508 and 597.

The frequent tabulation of dates from a single structure that occur in two consecutive years deserves elaboration. Logs cut before the spring growing season begins in a given year will have added their terminal ring during the growing season of the previous year. Logs cut during or after the growing season will bear a terminal ring from that year. In the semi-arid Southwest, the spring growing season begins and ends abruptly and is short, occurring mostly during the months of May and June. Therefore, trees with cutting dates of, for instance, A.D. 623 and 624 could have been cut within a period of from two to ten months of each other. In all likelihood a house would have been built in or shortly after the year in which all the materials were brought together.

In the earlier group of pithouses,

Pithouse 1 has two dates, both cutting dates from major roof supports, dating at A.D. 501 and 508.

Pithouse 2 has two dates, both cutting dates, at A.D. 468 and 499.

Pithouse 3 has a single date at A.D. 505.

Pithouse 8A has five dates, two at A.D. 469, one at 470, one at 493 and one at 494 with cutting dates at 469, 470 and 494. This house was probably built in or shortly after A.D. 470. The two later dates falling more than 20 years after the probable construction date in all likelihood represent repair timbers.

Six timbers representing the early building interval came from trash deposits in the cave. These ranged from A.D. 354 to 474 with cutting dates at 430 and 470.

In the later group,

Pithouse 4 has two dates, a reused timber cut in A.D. 491 and a log cut in 628.



Broken Flute Cave, continued

Pithouse 5 has five dates, a reused log with a cutting date at A.D. 457, the others ranging from 609 to 629 with this latest a cutting date from the northeast roof support and another specimen cut in the same year. It was probably constructed in or shortly after A.D. 629.

Pithouse 6 has sixteen dates ranging from A.D. 602 to 627 with three cutting dates at 622 and four cutting dates at 623 including the northeast roof support and three wall timbers. The structure was probably built in or shortly after A.D. 623 with the 627 date representing a repair timber.

Pithouse 7 has eight dates, ranging from 623 to 626, with one cutting date at 623, one cutting date at 624, four cutting dates at 625 and one cutting date at 626. The house was probably built about 626.

Pithouse 8 has six dates ranging from 618 to 627 with one a cutting date at 625 and a cutting date from a ladder pole at 627. It was probably built in or shortly after 625.

Pithouse 9 has 14 dates ranging from A.D. 515 to 624 with one cutting date at 611, four cutting dates from 623 and seven cutting dates from 624. Probably this house was built in or shortly after 624.

Pithouse 11 has seven dates ranging from 491 to 635 with single cutting dates at 621, 625 and 635. Probably it was built during this interval but it is unclear whether any one of these was a stockpiled or repair timber.

Pithouse 12 has six dates ranging from A.D. 621 to 623 with one cutting date at 621 and all other dates including four cutting dates at 623. The building date is clearly in or shortly after 623.

Pithouse 14 has one date at 627.

Pithouse 17 has three dates ranging from 489 to 605 with cutting dates at both ends of the range.

There are too few dates from Pithouses 4, 14 and 17 to assign definite building dates. However, the range of dates falls within that of the other houses and they were probably built near the time of the latest dates present in each house.

Ten timbers representing this second construction period found in trash deposits in the cave range from A.D. 597 to 652 with cutting dates at A.D. 597, 612, 622, two at 623, one at 624, two at 625 and one at 637.

Utilizing earliest and latest cutting dates from each construction group, the early building period at Broken Flute Cave, involving four out of seventeen pithouses, lasted from A.D. 470 to 508. The second, involving ten out of seventeen pithouses, began in A.D. 597 and ended in 637. The single specimen dating A.D. 652 is a probable indication of the length of occupation of the later pithouses. This later group is obviously a Basketmaker III occupation. However, the identity of the earlier group is unclear.



Cave 1 (Red Rock)

MAP REFERENCE: 28 (Fig. 3)

ALTERNATE NAME/NUMBER: Canyon de Chelly 8:5 (GP)

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is near the head of the first tributary canyon west of the canyon containing Broken Flute Cave on the north side of Atahonez Wash. This is a western tributary of Prayer Rock Wash which drains into the Red Wash which runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

A small cave containing three Basketmaker III pithouses and a number of Pueblo and Navajo masonry cists and storage rooms built against the back wall. Associated with the pithouses is Lino Gray, Chapin Gray and La Plata Black-on-white. Some later black-on-white ceramics were found.

SOURCE OF COLLECTION:

E.H. Morris for the Carnegie Institution of Washington in 1931.  
E.H. Morris and Emil W. Haury for Gila Pueblo in 1936.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936

Published Dates: Douglass 1938; Smiley 1951

DATES:

Pithouse 1

MLK-199 619p - 657vv

Pithouse 3

MLK-24 535±p - 658r

COMMENT:

The dates and the archaeology fit the Basketmaker III horizon described for Broken Flute Cave.

Cave 2 (Red Rock)

MAP REFERENCE: 29 (Fig. 3)

ALTERNATE NAME/NUMBER: None known

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is in the same northern tributary of Atahonez Wash as is Cave 1. Atahonez drains into Prayer Rock Wash which drains into the Red Wash which runs from near the Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

A small cave containing four Basketmaker III pithouses and at least three cists. Ceramics include Lino Gray, Obelisk Gray, La Plata Black-on-white and Lino Fugitive Red.

SOURCE OF COLLECTION:

Earl H. Morris for the Carnegie Institution of Washington in 1931.  
Earl H. Morris and Emil W. Haury for Gila Pueblo in 1936.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936

Published Dates: Douglass 1938; Haury 1939; Schulman 1949;  
Smiley 1951

DATES:

Room 1

MLK-12	571p - 626cL	MLK-2	531p - 669rL
MLK-15	622p - 655vv	MLK-8	490p - 669r
MLK-14	573p - 657vv	MLK-19	538p - 669vv
MLK-18	573p - 666c	MLK-21	476p - 669vv
GP-942	546 <sup>+</sup> p - 666c	GP-939	539p - 669r
GP-941	636fp - 667rB	GP-940	545 <sup>+</sup> p - 669vv
MLK-20	574p - 667v	GP-943	571p - 669r
MLK-17	628p - 667r	GP-945	528p - 669r
MLK-9	623p - 667v	GP-948	574p - 669cL
MLK-23-1	503p - 668c	GP-950	563 <sup>+</sup> p - 669cL
MLK-5	609p - 668vv	GP-953	558 <sup>+</sup> p - 669c

Room 2

GP-954	498p - 667r	GP-958	544p - 669r
MLK-35	503p - 667vv	GP-959	536p - 669vv
GP-955	431 <sup>+</sup> p - 668vv	MLK-30	634p - 669r

Cave 2 (Red Rock), continued

Room 2, continued

GP-956	480p	- 669r	MLK-32	537p	- 669v
GP-957	500	- 669r	MLK-29	583p	- 676rB
			MLK-42	566 <u>t</u> p	- 676c

Room 4

MLK-191	617p	- 642v	MLK-189	580p	- 658r
MLK-184	543p	- 645vv	MLK-190	616p	- 658r
MLK-195	617p	- 654vv	MLK-45	618p	- 658r
MLK-196	623p	- 654vv	MLK-186	593p	- 660+r
MLK-183	583p	- 655r	GP-966	527p	- 660+r
MLK-193	556 <u>t</u> p	- 656c	GP-962	443 <u>t</u> p	- 663++vv
GP-964	583p	- 657r	GP-960	522p	- 665rL
MLK-185	597 <u>t</u> p	- 658+ <u>t</u> r	GP-967	560p	- 668r
			GP-961	608p	- 670cL

West Ledge

MLK-69	586p	- 644cB
MLK-70	540 <u>t</u> p	- 656vv
MLK-71	504p	- 657+ <u>t</u> r

Loose Piece (May be from another site)

MLK-23	967	- 1081vv
--------	-----	----------

COMMENT:

Pithouse 1 provided twenty-two dates ranging from A.D. 626 to 669 with twenty-one dates falling between 655 and 669. Of these, two are cutting dates at 666, there are four dates, including two cutting dates at 667, there are two dates, including one cutting date at 668 and eleven dates including eight cutting dates at 669. This strongly suggests the stockpiling of timbers and the building of the house in or shortly after A.D. 669.

Pithouse 2 has eleven dates ranging from A.D. 667 to 676 with one cutting date at 667, 6 dates including 4 cutting dates at 669 and two cutting dates in the latest year. The house may have been built in or soon after A.D. 669 with 676 dates representing repairs or additions, or the whole group could be stockpiled timbers with the construction date at about 676.

Pithouse 4 has seventeen dates ranging from A.D. 642 to 670. They are evenly distributed with cutting dates at 655, 656, 657, four at 658, two at 660, and one each at 665, 668 and 670. The building date probably is close to A.D. 660.

Cave 2 (Red Rock), continued

Three specimens were found in trash with a cutting date at A.D. 644, a non-cutting date at 656 and a cutting date at 657.

A single date of A.D. 1081 came from a specimen whose provenience is uncertain. If it comes from Cave 2 then it represents later Pueblo use.



Cave 3 (Red Rock)

MAP REFERENCE: 30 (Fig. 3)

ALTERNATE NAME/NUMBER: None known

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is the western side of the next tributary canyon west of that containing Cave 2 on the north side of Atahonez Wash. This is a western tributary of Prayer Rock Wash which drains into Red Wash which runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

Cave is high above the valley floor, very narrow, about 175 m. long, and contained at least six Basketmaker pithouses, and some slab and masonry cists. Some later Pueblo storage cists were built at the back of the cave.

SOURCE OF COLLECTION:

Earl H. Morris and Emil W. Haury for Gila Pueblo in 1936.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936

Published Dates: None

DATES:

GP-969 584p - 646vv

COMMENT:

The date and the archaeology fit the Basketmaker III horizon described for Broken Flute Cave.

Cave 6 (Red Rock)

MAP REFERENCE: 31 (Fig. 3)

ALTERNATE NAME/NUMBER: None known

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is in north wall of Atahonez Canyon a short distance upstream from Pocket Cave. This is a western tributary of Prayer Rock Wash which drains into Red Wash which runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

Cave is badly eroded with vestiges of three Basketmaker III pithouses, two or three cists and thick trash deposits. Ceramics include Lino Gray, Kana-a Gray, fiber-tempered unfired pottery and some later Pueblo Black-on-white sherds.

SOURCE OF COLLECTION:

Earl H. Morris for the Carnegie Institution of Washington in 1931.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936.

Published Dates: Douglass 1938; Schulman 1949; Smiley 1951

DATES:

MLK-211	420p	-	556vv	MLK-201	635p	-	674c
MLK-207	582p	-	636vv	MLK-203	588p	-	674c
MLK-205	585p	-	660+r	MLK-204	644p	-	674r
MLK-213	595p	-	661+G	MLK-212	649p	-	674c
MLK-200	637p	-	674r	MLK-214	618p	-	674r
				MLK-215	599p	-	674c

COMMENT:

Eleven dates range between A.D. 556 and 674 with cutting dates at 660 and 661, and seven cutting dates at 674. At least one pithouse was probably built in or shortly after A.D. 674 and another possibly near A.D. 661.

Cave 7 (Red Rock)

MAP REFERENCE: 32 (Fig. 3)

ALTERNATE NAME/NUMBER: None known

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is in a canyon about two miles north of Atahonez Canyon. It is a tributary of Black Horse Creek which is a tributary to Red Wash which flows from near Red Rock Trading Post north to the San Juan River. The cave is in the north wall of the canyon about three miles upstream from the mouth where a side canyon enters from slightly west of north.

DESCRIPTION:

Cave is long and narrow with crude masonry structures superimposed on pithouses. Ceramics include plain gray ware, unfired fiber-tempered ware, and some Pueblo III Black-on-white sherds with Mesa Verde affiliations.

SOURCE OF COLLECTION:

Earl H. Morris of the Carnegie Institution of Washington in 1931.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936

Published Dates: Douglass 1938; Smiley 1951

DATES:

MLK-46	620p - 666c
MLK-50	587p - 666r
MLK-47	637p - 674r

COMMENT:

These few dates and the archaeology are similar to the Basketmaker remains described for Broken Flute Cave.

Cave 8 (Red Rock)

MAP REFERENCE: 33 (Fig. 3)

ALTERNATE NAME/NUMBER: None known

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is located just north of Cave 7 and northeast of the junction of the east-west tributary of Black Horse Creek and a smaller tributary entering from slightly west of north. Black Horse Creek drains into the Red Wash which runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

Cave is 175 m long and faces southwest. It contains three pithouses with a retaining wall and some cists. Ceramics include Lino Gray, La Plata Black-on-white, polished red, and unfired fiber-tempered wares.

SOURCE OF COLLECTION:

Earl H. Morris of the Carnegie Institution of Washington in 1931.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936

Published Dates: Douglass 1938; Smiley 1951

DATES:

MLK-223 532p - 668+vv

COMMENT:

This date and the archaeology fit the Basketmaker occupation described for Broken Flute Cave.



Obelisk Cave

MAP REFERENCE: 34 (Fig. 3)

ALTERNATE NAME/NUMBER: Canyon de Chelly 8:4 (GP), Oldisk Cave

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is in next drainage south of the canyon which contains Broken Flute Cave. This is a tributary of Prayer Rock Wash which drains into the Red Wash that runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

This cave contains at least one pithouse and some surface storage rooms. Ceramics include Lino Gray, Obelisk Gray, and unfired fiber-tempered pottery.

SOURCE OF COLLECTION:

Earl H. Morris of the Carnegie Institution of Washington in 1931.  
Earl H. Morris and Emil W. Haury for Gila Pueblo in 1936.  
Deric O'Bryan for Gila Pueblo in 1940.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936

Published Dates: Douglass 1936, 1938; Haury 1938; Schulman 1949;  
Smiley 1951

DATES:

Burned room, east center

GP-992	224p	-	325v
GP-923	337p	-	438vv
MLK-280	316p	-	480rL

General

GP-932	330p	-	446++rB	GP-931	378p	-	480vv
MLK-152	9p	-	478GB	GP-930	419p	-	484rGB
GP-6673	405p	-	479rB	MLK-150	270p	-	484v
MLK-151	233p	-	479rG	MLK-153	149+p	-	486B
MLK-156	216	-	480v	MLK-154	292p	-	489rB

Obelisk Cave, continued

COMMENT:

Thirteen dates range from A.D. 325 to 489 with cutting dates at 446, 478, two at 479, and one each at 480, 484, 486 and 489. This distribution indicates a possible building date, probably for a Basket-maker pithouse, of about 480, and then continued occupation and possible building during the next decade. The absence of later dates tends to lump this assemblage with the early occupation of Broken Flute Cave.

Red Rock, Misc. I

MAP REFERENCE: 35 (Fig. 3)

ALTERNATE NAME/NUMBER: Obelisk Cave area

LOCATION:

In the extreme northeastern corner of Arizona, in Apache County. Cave is the next cave north from Obelisk Cave in drainage south of Atahonez Canyon. Atahonez drains into Prayer Rock Wash which drains into Red Wash that runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

There are at least three pithouses one of which is slab-lined. Several surface cists and granaries probably represent several periods of use. Only plain gray ceramics were noted.

SOURCE OF COLLECTION:

Deric O'Bryan for Gila Pueblo in 1948.

REFERENCES:

Site Description: W.J. Robinson, personal communication

Published Dates: None

DATES:

IF-176	307fp - 510v
GP-6701	460p - 585G
GP-6700	538p - 623c

COMMENT:

These dates and what is known of the archaeology fit the assemblage described for Broken Flute Cave.

Prayer Rock Cave

MAP REFERENCE: 36 (Fig. 3)

ALTERNATE NAME/NUMBER: Prayer Rock Cove, Prayer Rock Cliff Dwelling

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is near the mouth of Atahonez Canyon which is a western tributary of Prayer Rock Wash which drains into the Red Wash that runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

Small Pueblo III cliff dwelling. Most remaining rooms are store rooms. Probable affiliations with the Mesa Verde area.

SOURCE OF COLLECTION:

Earl H. Morris of the Carnegie Institution of Washington in 1931. Deric O'Bryan for Gila Pueblo in 1948.

REFERENCES:

Site Description: Morris 1931

Published Dates: Douglass 1938; Smiley 1951

DATES:

MLK-159	838 <sup>±</sup> p	-	1238 <sup>++</sup> B
MLK-160	1137 <sup>±</sup> p	-	1268GL
MLK-158	1196p	-	1272vv
MLK-157	1212p	-	1274v
GP-6705	1201p	-	1274v
MLK-162	1195p	-	1277cB

COMMENT:

Six dates range from A.D. 1238 to 1277 with cutting dates at 1238, 1268 and 1277. These probably span the time of building activity.



Pocket Cave

MAP REFERENCE: 37 (Fig. 3)

ALTERNATE NAME/NUMBER: None known

LOCATION:

In the extreme northeastern corner of Arizona in Apache County. Cave is located in the north wall of Atahonez Canyon upstream from Cave 3. Atahonez Wash drains into Prayer Rock Wash which drains into Red Wash that runs from near Red Rock Trading Post north to the San Juan River.

DESCRIPTION:

Cave faces southeast and contains at least three pithouses, a number of cists and storage rooms, and turkey pens. The ceramics include Obelisk Gray, Lino Gray and La Plata Black-on-white.

SOURCE OF COLLECTION:

Earl H. Morris and Emil W. Haury for Gila Pueblo in 1936.

REFERENCES:

Site Description: Morris, E.A., 1959; Morris, E.H., 1936

Published Dates: None

DATES:

GP-970 234p - 438++v

COMMENT:

This single date suggests the earlier Basketmaker occupation at Broken Flute Cave.

## REFERENCES

Bernheimer, Charles L.

- 1924 Rainbow Bridge. Doubleday, Page and Co., New York.

Colton, Harold S.

- 1939a The Date of Three Turkey House. Tree-Ring Bulletin, Vol. 5, No. 4, p. 26. Tucson.
- 1939b Three Turkey House. Plateau, Vol. 12, No. 2, pp. 26-31. Flagstaff.

Douglass, A. E.

- 1935 Dating Pueblo Bonito and Other Ruins of the Southwest. National Geographic Society, Contributed Technical Papers, Pueblo Bonito Series, No. 1. Washington.
- 1936 The Central Pueblo Chronology. Tree-Ring Bulletin, Vol. 2, No. 4, pp. 29-34. Tucson.
- 1938 Southwestern Dated Ruins: V. Tree-Ring Bulletin, Vol. 5, No. 2, pp. 10-13. Tucson.

Gladwin, Harold S.

- 1948 Excavations at Snaketown, IV: Reviews and Conclusions. Medallion Papers, No. 38. Globe.

Haury, Emil W.

- 1936 Vandal Cave. The Kiva, Vol. 1, No. 6, pp. 1-4. Tucson.
- 1938 Southwestern Dated Ruins: II. Tree-Ring Bulletin, Vol. 4, No. 3, pp. 3-4. Tucson.
- 1945 Painted Cave, Northeastern Arizona. The Amerind Foundation, No. 3. Dragoon.

Kidder, A. V.

- 1927 The Museum's Expeditions to Canon de Chelly and Canon del Muerto, Arizona. Natural History, Vol. 27, No. 3, pp. 202-209. New York.

McGregor, John C.

- 1938 Southwestern Dated Ruins: III. Tree-Ring Bulletin, Vol. 4, No. 4, p. 6. Tucson.

Mindeleff, Cosmos

- 1897 Cliff Ruins of Canyon de Chelly, Arizona. Annual Report of the Bureau of American Ethnology, No. 16, pp. 79-198. Washington.

Morris, Ann Axtell

- 1933 Digging in the Southwest. Doubleday, Doran and Co., Inc. New York.

Morris, Earl H.

- 1925 Exploring in the Canyon of Death. The National Geographic Magazine, Vol. 48, No. 3, pp. 263-274, 291-300. Washington.
- 1931 Excavations in the Prayer Rock District, Northeastern Arizona. Unpublished Field Notes in Arizona State Museum.
- 1936 Archaeological Background of Dates in Early Arizona Chronology. Tree-Ring Bulletin, Vol. 2, No. 4, pp. 34-36. Tucson.
- 1938 Mummy Cave. Natural History, Vol. 42, pp. 127-138. New York.
- 1941 Prayer Sticks in Walls of Mummy Cave Tower, Canyon del Muerto. American Antiquity, Vol. 6, No. 3, pp. 227-230. Menasha.

Morris, Elizabeth A.

- 1959 Basketmaker Caves in the Prayer Rock District, Northeastern Arizona. MS, Doctoral dissertation, The University of Arizona, Tucson.

Peterson, Alfred

- 1935 Specimens from the Pueblo Area Collected by the First Beam Expedition, 1923. Tree-Ring Bulletin, Vol. 1, No. 3, pp. 23-24. Tucson.

Schulman, Edmund

- 1949 Early Chronologies in the San Juan Basin. Tree-Ring Bulletin, Vol. 15, No. 4, pp. 24-32. Tucson.
- 1952 Extension of the San Juan Chronology to B.C. Times. Tree-Ring Bulletin, Vol. 18, No. 4, pp. 30-35. Tucson.

Smiley, Terah L.

- 1951 A Summary of Tree-Ring Dates from some Southwestern Archaeological Sites. University of Arizona Bulletin, Vol. 22, Laboratory of Tree-Ring Research Bulletin, No. 5. Tucson.

PREVIOUS QUADRANGLE REPORTS

TREE-RING DATES FROM ARIZONA K: Puerco--Wide Ruin--  
Ganado Area, by Bryant Bannister, John W. Hannah,  
and William J. Robinson. 1966.