

THE SMOKING COMPLEX IN THE  
PREHISTORIC SOUTHWEST

by

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## ABSTRACT

The object of this study was to examine the smoking habits in the prehistoric Southwest by systematically tracing the distribution of various smoking devices, primarily the smoking pipe. As a result of the search of the literature and Arizona State Museum collections, a classification of seven types based primarily on form was established. Each type is analyzed in respect to its distribution in the greater Southwest. Within the type each pipe was coded on a unisort card for the attributes of material used for manufacture, surface treatment (painting, incising, polishing, etc.), provenience, cultural association and exterior and interior characteristics. By comparing the types it is apparent that the smoking pipe is a more sensitive indicator of cultural change than formerly thought. Each subarea of the Southwest is characterized by particular pipe types and attributes which show change through time, as well as the intensity of interaction between areas at specific time periods.

## CHAPTER 1

### INTRODUCTION

For well over half a century the Southwest has proved to be a fertile area for archaeological research. The greater Southwestern area has been more intensively and extensively explored than any other comparable area, although not all the problems of Southwestern prehistory have been solved.

The three main cultural areas, Anasazi, Mogollon, and Hohokam, are well known archaeologically, but the peripheral Southwest is largely untested. The unevenness of our knowledge applied also to the artifactual assemblages characterizing these particular culture areas. Pottery has traditionally been the overwhelming preoccupation of Southwest archaeologists, and pottery types for most areas have been thoroughly analyzed and described while other items of prehistoric culture have been relatively neglected. One of these items is the smoking pipe which occurs in a preceramic context archaeologically, and has persisted until the present among Southwestern Indian groups. Pipes are part of a complex of items including cane cigarettes, tobacco, and other smoking paraphernalia.

In this study I have arbitrarily established a number of types based on form, for pipes which occur in significant numbers in the prehistoric Southwest. The types employed were established

after an intensive search of the literature and the file cards of the Arizona State Museum. Each pipe was put on a separate unisort analysis card, and besides the type notation all descriptive characteristics, as well as geographical, temporal, and provenience data were coded. By plotting the distribution of each type I have found that pipes correlate with known cultural areas and time periods in the Southwest. In each area pipe types and decorative attributes show stylistic change through time while processes of manufacture and materials used remained static. Using this variation as a base, I intend to trace past cultural relationships in the Southwest.

Pipes were not the only device used for smoking. In the Hohokam region pipes are rarely found archaeologically, but cane cigarettes are common. Cane cigarettes are found sporadically throughout the Mogollon and Anasazi sequences, but they never gained sufficient popularity to replace the pipe.

In a discussion of the materials smoked one immediately thinks of tobacco, yet "it is not safe to assume that pipes are prima facie evidence of tobacco smoking" (Jones 1944: 456). Most Indian groups smoked a mixture of tobacco and other herbs that produced a pungent odor and a slight narcotic effect (Linton 1924). Castetter (1943) has reported that Pueblo groups smoked manzanita leaves (Arctostaphylos pungens) alone and in combination with tobacco. Jones (1944) reports the use of tobacco along with many non-narcotic plants and even feathers for ritual smoking.

There are several definite signs to indicate that a pipe had been smoked aboriginally. A dottle or cake in the pipe bowl is the most obvious, but blackening in the bowl or stains around the stem end also may indicate intensive use. Although carbonaceous material is often found in prehistoric pipe bowls, few chemical analyses of this material have been attempted.

The first analysis of Basketmaker pipe dottles was conducted by Dixon and Stetson (1922), and it produced negative results for nicotine. From these results it was concluded that tobacco was not smoked prehistorically, or that possibly any traces of tobacco had been leached out through time. Additional analyses did not prove conclusively that tobacco was smoked aboriginally by Southwestern groups. In the Hohokam area, however, Fewkes (1912) found a dish of Nicotiana attenuata at the Casa Grande Ruin, and Jones (1935) discovered tobacco leaves, as well as bark of the creosote bush in reed cigarettes from the same site. These discoveries proved the aboriginal utilization of tobacco for cigarette smoking in the Hohokam area, but as yet there was no conclusive evidence to indicate the use of tobacco for pipe smoking among Basketmaker and Puebloan groups. Since several wild species of tobacco, Nicotiana trigonophylla and N. attenuata, are indigenous to the Southwest, it was assumed that tobacco must have been used, in part, for ritual pipe smoking.

Recent investigation has produced positive proof of tobacco utilization, by the 17th century, in northeastern Arizona in the Anasazi area. Here, a Basketmaker III cave site yielded a cache of

tobacco, Nicotiana attenuata (Jones and Morris 1960: 115). Several pipes found in these Basketmaker caves contained carbonized material which was later analyzed and identified as tobacco. Material other than tobacco, similar in structure to corn silk, was also reported from several of the pipe dottles (Jones and Morris 1960). More evidence for the smoking of tobacco in pipes comes from the site of Tumacacori in southern Arizona. A cache of steatite pipes was found in Compound E, and several of the pipe bowls contained dottles (DiPeso 1956). The subsequent analysis confirmed the use and possible cultivation of tobacco by late prehistoric or historic times.

Today, with the primacy of the interdisciplinary approach, archaeologists are more aware of and more interested in the recovery and analysis of plant materials. Thus, in the future more information should be available on the types of plants utilized by prehistoric peoples.

In the text of this study the word tobacco is used to denote the combination of smoking materials used in the Southwest and not *Nicotiana per se*.

The function of the smoking complex in prehistoric Southwestern society poses an interesting problem. It has always been assumed that smoking was performed in a ritual context, but the archaeological evidence does not completely support this assumption. By investigating the archaeological context in which each pipe was found, and comparing the types, I hope to be able to clarify the cultural role of these items, removing them from the frequently meaningless archaeological category of "ceremonial items."

## CHAPTER 2

### EXPLANATION OF TYPES

In developing a pipe typology, form is both the most obvious and the most important criterion. Because it is the most obvious characteristic for description, type categories in the Southwestern literature are largely limited to form. Early investigators referred to straight pipes (Fewkes 1898), and tubular pipes or cloudblowers (Hough 1903) which occurred with regularity at Southwestern sites. The one exception to this form typology is the cloudblower, a cultural-functional term that will be discussed later. The pipe typology that has resulted over a period of time has never been formally tested, a fact that in part precipitated this study.

Any ordering of data, to merit the term typology, must attempt more than a classification of material to facilitate reference (Krieger 1944). Kidder's (1932) pipe typology from Pecos suffers from being a mere classificatory scheme rather than a pipe typology that goes beyond this step to reflect cultural or historical reality. My purpose in establishing a pipe typology is not to construct a complete typology of Southwestern pipes as the limitations in the literature prevent such an undertaking. However, within these limitations the attribute of form has served as the primary criterion for type distinction and seven type categories have been realized in this study (Table 1).

Table 1. Numbers of Pipes by Type and Material

<u>Types</u>	<u>Stone</u>	<u>Clay</u>	<u>Bone</u>	<u>Wood</u>	<u>Corn Cob</u>	<u>Tot.</u>
Tubular	152	136	8	1	1	298
Trumpet-Shaped Tubular		9				9
Short Cylindrical	45	9				54
Conical	19	68		3		90
Shouldered Conical		15				15
Elbow	13	45				58
Effigy		6				6

The attribute of form in pipes clearly seems to indicate a "constructional idea," as the continued usage by generations of investigators would attest. The form of a pipe was not dictated by material nor clearly limited by function. Other than decoration (an attribute in limited quantity), it appears to offer the widest scope for cultural creativity. Unfortunately, except for exterior form, pipes do not possess the variety of attributes found in pottery. Nevertheless, my types are useful because they can be tested against a large body of knowledge already available for the Southwest. They are legitimate types because they "consistently... occur in site after site in the same temporal horizon and in the same cultural complex" (Krieger 1944: 280). Their differential distribution in time and space, in association with known cultural complexes serves to validate them (Fig. 1).

The problems with the published sources, mentioned above, are concerned largely with variation in the completeness of description. Pipes and other items of the smoking complex are often poorly described in archaeological reports, and if there was no photograph of the pipe I was forced to rely upon the author's description in order to type the specimen. This factor permits the possibility of inconsistent typing, which I tried to avoid by discarding inadequately described items and concentrating upon those that could be validly typed.

In collecting the data on pipes, I have relied solely on the literature and the files of the Arizona State Museum. I have not

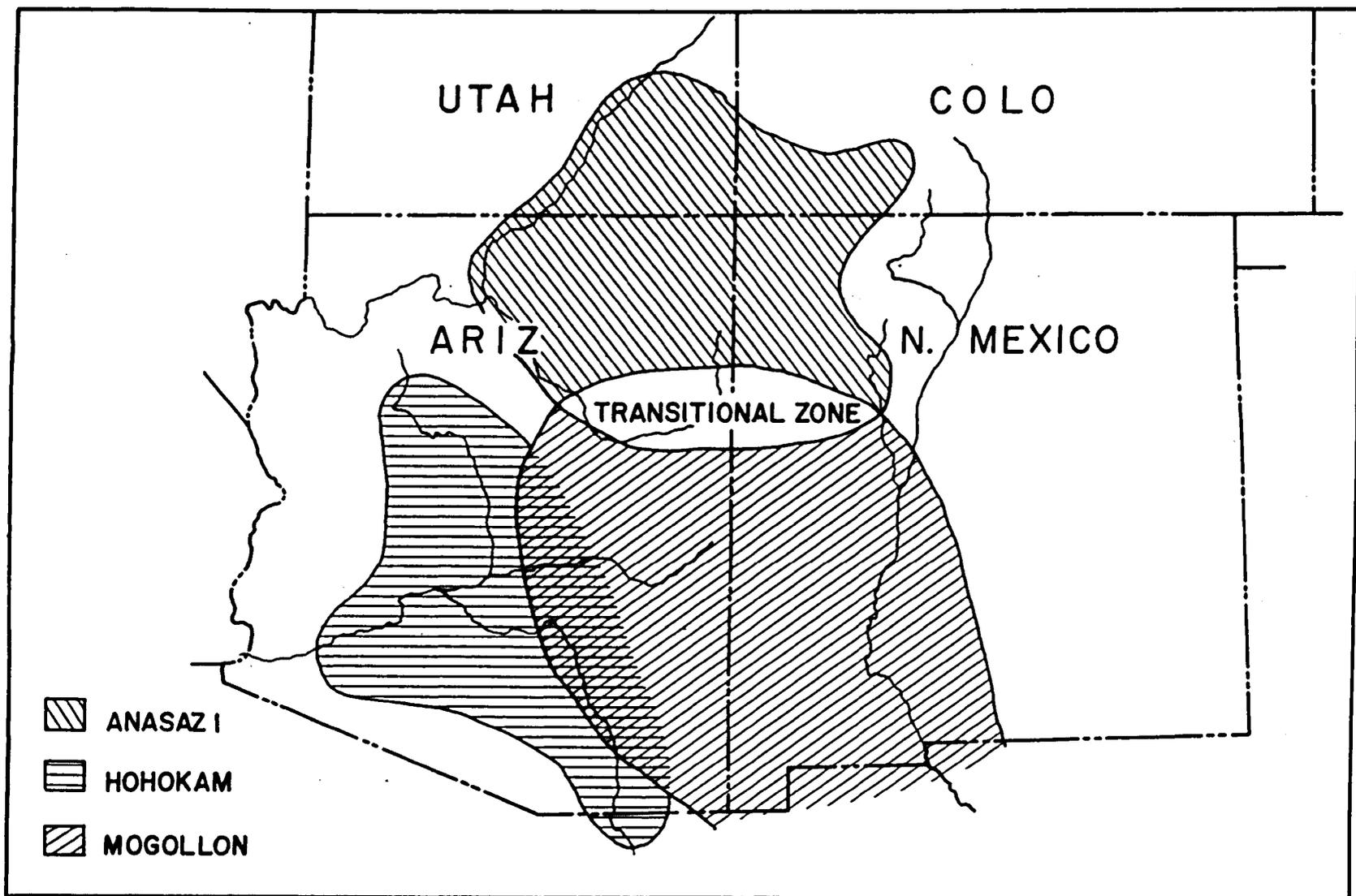


Figure 1. Map of the Traditional Southwestern Culture Groups around A.D. 900 (adapted from Jennings 1956, Fig. 1a).

studied collections from other museums in the Southwest, nor have I had access to private collections. My sample consists of over six hundred specimens, which forms the framework for the analysis.

It should be mentioned here that Kidder (1932) recovered over 600 pipes from the Pueblo of Pecos. Since I could not code these specimens individually, I have handled the collection as a whole using photographs and textual material when relevant to the topic under discussion.

### The Types

#### Tubular Pipes

Tubular pipes are the most common form found in the archaeological Southwest (Fig. 2). In the literature they are commonly called cylindrical, cigar-holder form, or straight pipes, all terms referring to the same type. The length of these specimens varies from long, thin tubes up to 12 inches in length (Cosgrove and Cosgrove 1932), to shorter pipes less than an inch long. These latter pipes, though called tubular in the literature, I have often typed as short cylindrical as discussed below.

Stone tubular pipes are characterized by a straight bore, with no prominent division of the interior into a bowl and smoke passage (Kidder 1932). The exterior is tube-like with straight or slightly convex sides, and a perceptible taper from bowl to stem end, giving a slight funnel-shaped appearance. Other tubular pipes are more barrel shaped, but in both groups the greatest diameter is found just below the bowl end (Fig. 2 c).

Figure 2. Tubular Pipes

- a. clay tubular pipe with a differentiated bore  
(after Kidder 1932, Fig. 136)
- b. clay tubular pipe with a bevel at the bowl end  
(after Martin, Rinaldo and Longacre 1961, Fig. 66)
- c. stone tubular pipe with a straight bore and a stone  
plug in place (after Kaemlein 1958, Fig. 1)

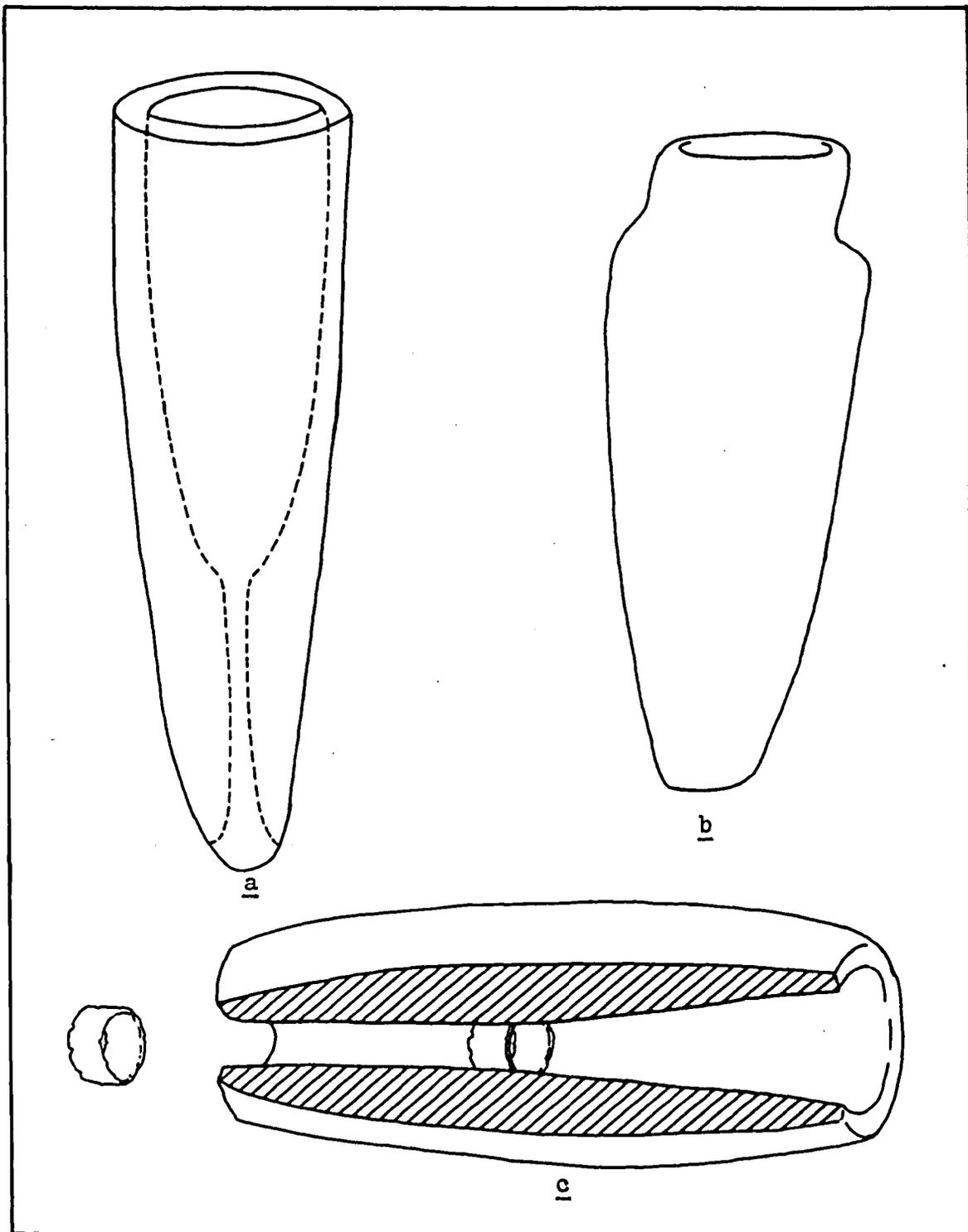


Figure 2. Tubular Pipes

Unfortunately, the pan-Southwestern distribution of tubular pipes, as well as their great time span, makes this category less meaningful in itself for discussing cultural interaction. But there are differences in the decorative techniques that permit some subdivision at different time periods, although these are not so well defined as in the other types.

#### Short Cylindrical Pipes

The thick, squatty appearance of this type (Fig. 3 c, d) is the main feature differentiating it from the longer tubular variety. These pipes are usually made of stone and range in length from less than an inch to about two inches. They are often more barrel shaped than tapered, and the interiors vary from hourglass form (Fig. 3 d) to the straight, slightly tapered form found in the tubular type. The construction of these pipes suggests the insertion of a detachable stem or bit (Fig. 3 c) for use as a mouthpiece but, if a bit is not found in place archaeologically it is difficult to determine whether such a device was used prehistorically.

#### Trumpet-Shaped Tubular Pipes

Trumpet-shaped pipes represent a distinct and unusual type distinguished by a long, narrow tubular stem that flared abruptly into a trumpet or bell shaped bowl (Fig. 4 b). The bowls are characteristically broad and shallow and Judd (1954) has reported finding specimens with bowls up to three inches in breadth. The non-functional aspects of this bowl for holding smoking material may indicate ceremonial usage for the type.

Figure 3. Pipes: Shouldered Conical, Conical and Short Cylindrical

- a. clay shouldered conical pipe with zigzag punctation  
(after Martin and Rinaldo 1940, Fig. 34)
- b. stone conical pipe with an incised band around the body  
(after Martin and others 1964, Fig. 37a)
- c. stone short cylindrical pipe with a bone stem (after  
Hough 1903, plate 52)
- d. stone short cylindrical pipe with an hourglass-shaped  
bore (after Wendorf 1953a, Fig. 81d)

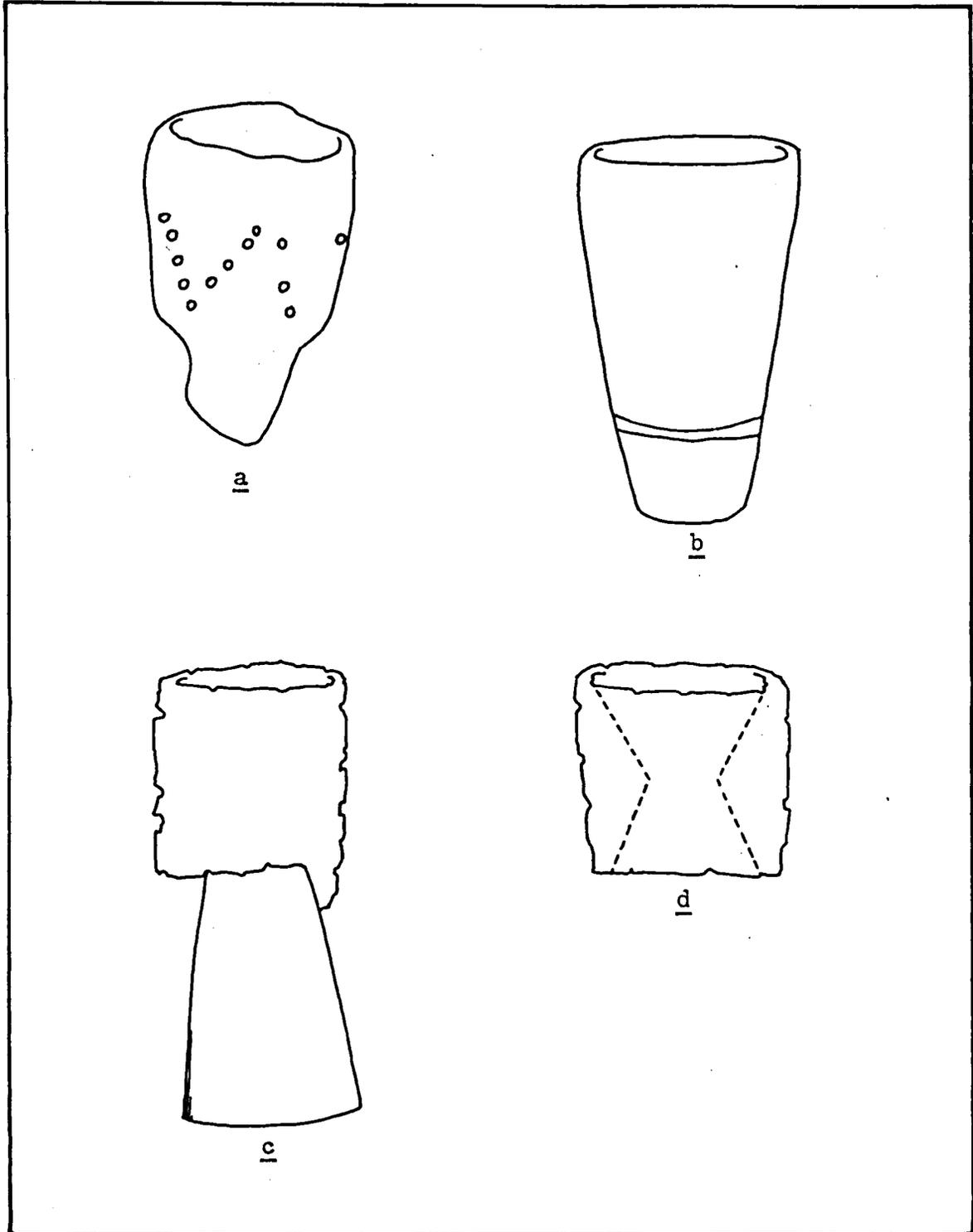


Figure 3. Pipes: Shouldered Conical, Conical and Short Cylindrical

Figure 4. Pipes: Elbow, Trumpet-Shaped Tubular and Effigy

- a. clay footed elbow pipe with a painted stem (after Judd 1954, Fig. 94b)
- b. clay trumpet-shaped tubular pipe (after Judd 1954, Fig. 95)
- c. stone elbow pipe (after Judd 1954, Fig. 97c)
- d. clay effigy pipe fragment (after Kidder 1932, Fig. 152)

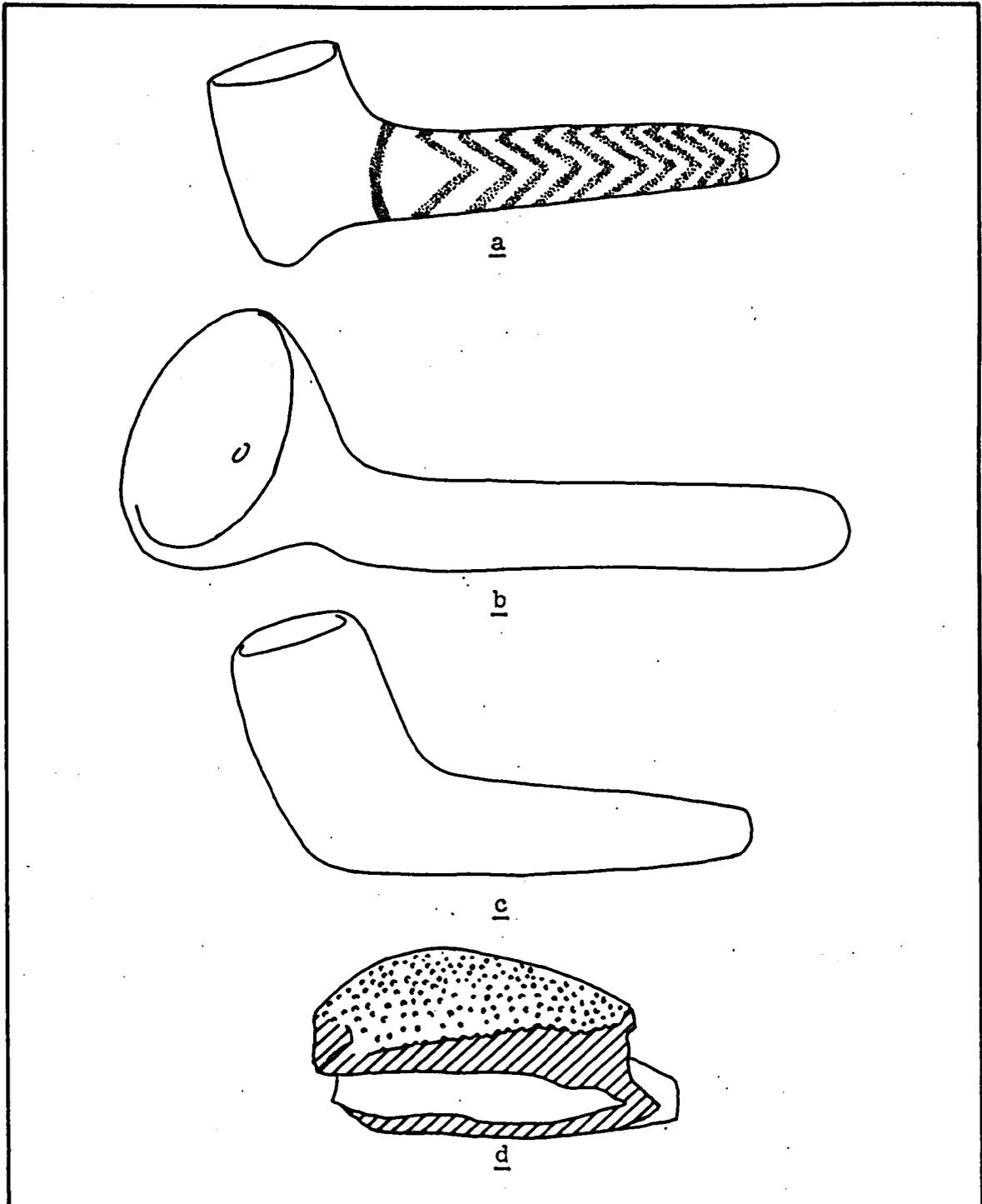


Figure 4. Pipes: Elbow, Trumpet-Shaped Tubular and Effigy

### Conical Pipes

Conical pipes, as the name implies, are cone shaped with an expanded bowl and straight tapering sides (Fig. 3 b). They are usually made of clay, the plasticity of the clay permitting a more funnel shape in contrast to the stone specimens that are more tube-like with a less flaring bowl. The interior of most conical pipes is divided into two sections, a rounded bowl and a constricted smoke passage. The division facilitates smoking and lessens the need for a separate stem although a few conical pipes are found archaeologically with stems in place (cf. Dick 1965: 85).

The size and length of these pipes varies from small cone-like objects, to longer pipes which resemble modern ethnographic cloudblowers. Because of the plasticity of the clay, a variety of techniques were employed to decorate the surface of these pipes.

### Shouldered Conical Pipes

This type may be considered a variety of the regular conical form. The bowl and stem are modeled in one piece, and the rounded or bulbous bowl contracts to a tapering, cylindrical stem (Fig. 3 a). Each section forms a distinct unit, as shown by the exterior form, and a slight shoulder marks the separation between these units. The bowls have incurving rims in contrast to the flaring bowl rims of the conical variety and the distinct and narrow stem is in itself the mouthpiece of the pipe, so there was no need for a detachable stem.

### Elbow Pipes

These pipes are definitely the most functional smoking device found in the prehistoric Southwest. They closely resemble a modern pipe in form with the bowl set vertically at a right angle to the cylindrical stem (Fig. 4 c). Most specimens are of clay and are modeled in one piece without an additional mouthpiece.

Elbow pipes are not indigenous to the Southwest, but diffused into the area during Pueblo I, gaining limited popularity in specific regions and existing contemporaneously with the tubular pipes.

### Effigy Pipes

The rare effigy pipe found in the Southwest cannot be justly compared to the beautiful and imaginatively made specimens found at Adena and Hopewell sites in the Midwest. The few Southwestern examples are crudely executed and lack the sophistication of the eastern forms (Fig. 4 a). They are usually found in fragmentary condition making it difficult to reconstruct the original form. The majority were modeled to represent animal forms with birds and frogs being the most common motifs.

## CHAPTER 3

### TUBULAR PIPES

A glance at the total sample shows the high frequency of tubular pipes in relation to other types. In this category there is only a slight difference in the number of stone and clay tubular pipes, a situation not found in other types where there was a definite preference of one material for manufacture. Although stone and clay are the most frequently used materials, wood and bone are occasionally found. Because of the perishable nature of wood especially, it is possible that many more pipes were originally made of these materials than are now reported from archaeological sites.

#### Stone Tubular Pipes

##### Interior Form

To construct a stone tubular pipe the maker first roughed out the exterior form before attempting to construct the pipe bore. Slight depressions were pecked into each end of the pipe to provide guidelines for future drilling of the bowl and stem. The interior form was created by pecking, grinding, and gouging, or probably by any method that produced the desired results. Pipe bores differ in shape and in method of construction depending upon the pipe type and the plasticity of the material being used for manufacture. Stone tubular pipes usually have a straight tapering bore (Fig. 2 c) and

clay pipes one that is separated into a distinctly widened bowl end and a constricted smoke passage (Fig. 2 a). A differentiated bore, however, is not restricted to clay pipes as a number of stone tubular pipes also exhibit this interior form. The bores of these pipes were produced by rotary drilling and grinding of the bowl until the desired depth and width was achieved. The other end was also drilled to form a narrow stem that opened into the rounded bowl. Pipes were drilled from one end or both ends, but the two ended method was more desirable since it lessened the chance of breakage during manufacture.

Stone tubular pipes with a differentiated bore were found in all areas of the Southwest with several pipes coming from Basketmaker II sites in Utah (Nusbaum 1922), southwestern Colorado (Morris and Burgh 1954), and the Mimbres branch of the Mogollon area (Martin and others 1952). These pipes continue to be found over a wide geographical area of the Southwest and persist through the Pueblo IV period, as evidenced by the example found by Rinaldo (1959) at Foote Canyon Pueblo located in the Mimbres branch of the Mogollon area.

It took more time and skill to construct a pipe with a differentiated bore, but the final result was a more functional pipe that was easier to smoke. This advantage may explain the persistence of the differentiated bore through time.

Even though a differentiated bore facilitated smoking it was not the most common interior form found among stone tubular pipes. Most of the stone tubular pipes in the sample evinced a straight tapering bore with no distinct division between the bowl and smoke

passage. The bowl area was not rounded as in the previous type, but was just a continuation of the stem although somewhat wider. A straight tapering bore was easily manufactured by drilling the bore from either one or both ends. If the bore was drilled from each end the holes did not always meet evenly in the center of the pipe, but tended to diverge slightly to one side. Although such a defect did not hamper the functional use of the pipe, most craftsmen corrected this overlapping by reaming out the interior surface of the pipe to produce a smoother bore.

Since straight tapering bores were the most common type of interior form among tubular pipes it is not unusual to find these pipes at sites in all parts of the Southwest. They occur as early as the Pine Lawn phase at the Promontory site (Martin, Rinaldo and Antevs 1949) in the Mogollon area and persist through Pueblo IV times at the Point of Pines Ruin. In the Anasazi area these pipes are found at Basketmaker II sites and continue to be found in all succeeding periods. Other areas of importance include the Hohokam region where stone tubular pipes were found at the late prehistoric and historic site of Tumacacori (DiPeso 1956), and in the northern periphery at Cave DuPont which dates as early as Basketmaker II times. Examples from California and Chihuahua have also been noted, but the age of these pipes is unknown.

Although a straight tapering bore was more easily produced than a differentiated interior form, the main disadvantage of the former type was the lack of any obstruction to keep tobacco out of

the smoker's mouth. Prehistoric Southwesterners rectified this situation by placing a plug in the pipe bore (Fig. 2 c). These plugs, which are of various shapes and materials, were no doubt commonly used in pipes, but today they are rarely found in place archaeologically. If a plug was found separately it would most likely be catalogued as a pellet or disc of unknown use. Some plugs fit tightly in the pipe bore and others were merely placed there, but in all cases they allow air to pass and serve to keep burning smoking material out of the smoker's mouth.

Two stone tubular pipes were found with a plug still in the bore. The best example came from the Bluff Ruin, where a vesicular basalt pipe was found with a beveled sandstone disc placed midway in the bore (cf. Kaemlein 1958: 25). The other specimen was made of steatite and contained a wooden plug placed near the mouth end. This pipe was found by Steward (1936) at a Pueblo I period site in western Utah. Smith (1952) found a pipe at Awatovi that had a permanent plug in the bore. The plug was a plastic substance, probably clay, that had been pierced to allow the passage of air.

#### Exterior Characteristics

The construction of stone tubular pipes permits them to be smoked without the addition of a separate stem, but in some instances an additional stem or bit was used as a mouthpiece (Fig. 3 c). Occasionally archaeologists are fortunate enough to find a pipe with a separate stem still in place. If a pipe is found without such a device in place, it is difficult to infer whether one was used when the

pipe was smoked. These separate bits were inserted into the stem end of the pipe and were secured with gum or pitch. In two instances authors have suggested that a bit had once been used, because a gummy residue remained in the pipe stem.

Eight pipes in the sample were found with the bit still in place. Most of the pipes in this group came from Anasazi sites, and in particular Broken Flute Cave (Morris 1959), where several of the examples had bits made of wood attesting to the ideal conditions for preservation found there. One pipe from this site is of particular interest and importance as the bit was inserted into the pipe in a unique manner which I have not encountered for any other pipe in the sample. The bit was joined to the pipe by being inserted over a wooden sleeve that fit into the mouth end of the pipe. The sleeve and bit were then secured with pitch.

The other pipes came from a Pueblo I site near Albuquerque, and from Pueblo Bonito, a Pueblo III site located in Chaco Canyon.

Two pipes with bits in place came from sites in the Mogollon area. One was found at Tularosa Cave where ideal conditions prevailed for the recovery of perishable material. This pipe had a bone bit and was found in a level dating from the Georgetown phase. The other pipe with a bone bit in place was found in a pithouse at Starkweather Ruin (Nesbitt 1938) dating from the Three Circle phase (Pueblo II). It seems logical to conclude that tubular pipes with a straight tapering bore would, out of necessity, have been smoked with an additional stem, although data from the sample does not support this conclusion.

The straight exterior form of tubular pipes is occasionally interrupted by a bevel carved into the surface of the pipe. These bevels are frequently found near the bowl end of the pipe (Fig. 2 b) and only rarely near the mouth end. They are largely characteristic of tubular pipes and almost never occur as a feature of other types. It seems that these bevels did not hinder or improve the functional use of the pipe, but may have served only as decoration or "possibly for attachment of feathers, cord etc." (Reiter 1938: 157). Since pipe smoking plays an important ceremonial role within the society, this suggestion seems plausible. It is likely that pahos or other ceremonial gear were wrapped around the bevel during use.

Most of the pipes with this unusual bevel were found at sites located in the Mimbres and Cibola branches of the Mogollon area. Hough surveyed this region in 1914 and accurate dates for these sites are unavailable. It is noteworthy, however, that a number of these beveled pipes were also painted, a combination of attributes that may indicate special usage.

#### Surface Treatment

The Adena and Hopewell cultural traditions are well known for their elaborately carved and decorated pipes. In the Southwest, however, decorative techniques remained exceedingly simple in comparison to Southeastern standards.

Polishing, incising and painting were the main techniques used, but the majority of tubular pipes remained undecorated. There does not seem to be a distinct evolutionary development in terms of

increased decoration through time. Pipes from sites dating very early in time are found with painted and incised decoration. In later time periods, however, the decorative techniques remained relatively stable although pipe forms became more complex.

The characteristics of the manufacturing material influence decorative techniques. Clay pipes were more often found with polished and incised surfaces than stone pipes, and likewise punctation and impressed decoration characterize clay pipes but never stone ones. On the other hand, the sample shows painted decoration to be more frequently applied to stone rather than clay pipes. Since paint is as easily applied to clay as to stone, the reason why stone pipes are more frequently painted cannot be explained as a function of the manufacturing material. It has been previously mentioned that the bevel near the bowl end of stone pipes may have had ceremonial significance, and since beveling is a more common feature of stone pipes this may indicate a possible preference of stone pipes for ceremonial use, at least in the Mogollon area. Of the eleven beveled stone pipes, five of them were painted, perhaps linking painting to ceremonial activity and explaining the greater number of painted stone pipes.

### Polishing

Polishing was probably one of the first decorative techniques used by prehistoric Southwesterners, and none of the polished pipes in this group show any additional decoration. The majority of these pipes came from sites in the Anasazi area, many dating to the Basket-maker II and III periods. Polishing continued to be an important

decorative technique in this area as polished pipes were found at a number of sites dating to the Pueblo periods. In the Mogollon area polishing was not a popular decorative attribute as only four polished tubular pipes came from sites in this region. These sites all date to the Pueblo III period or later when the Anasazi had extended their frontiers and blended with the Mogollon, possibly introducing the technique of polishing to the Mogollon at this time.

In the peripheral regions of the Southwest polished tubular pipes appear in a Basketmaker II context at Ceremonial Cave (Cosgrove 1947) in the Hueco area of Texas, and by Pueblo I times in Utah.

### Incising

Incising occurs on stone tubular pipes in a random manner, and the placement of the incisions and their decorative pattern varies for each individual specimen. In this sample of nine incised pipes three have incisions running lengthwise along the body of the pipe, and one from Crooked Ridge Village, had longitudinal incisions intersected by lines encircling the entire pipe, forming rectangles and elongated trapezoids (Wheat 1954). Another has similar decoration, although the incised bands occur only around the bowl end, with longitudinal incisions extending the length of the pipe. It is more common, however, to find incisions encircling the pipe (Fig. 3 b) and the four pipes exemplifying this form of decoration have lines near the mouthpiece, bowl end, and around the center of the pipe with no apparent regular pattern. One pipe in the sample was only decorated around the bowl edge where the manufacturer incised a series of nested

"V's" or chevrons. This pipe also had red paint adhering to the bowl end. Two pipes had been painted and incised, but none of the other specimens showed any additional decoration besides incision.

The distribution of the pipes is fairly restricted with five of the nine specimens coming from the Mogollon area. In time, the earliest occurred at Crooked Ridge Village dating to the late Circle Prairie phase (A.D. 400-600), and the other came from sites dating to Pueblo III times when the Mogollon were being heavily influenced by the Anasazi. Incising is a more common characteristic of clay pipes, yet none of the incised clay tubular pipes were found in the Mogollon area, all coming from Anasazi sites. Other incised stone tubular pipes came from sites in the Anasazi and Hohokam areas with one example from a Chumash site in California. These pipes all date to the Pueblo III period and later.

#### Painting

The stone tubular pipes that displayed the most sophisticated painted decoration came from sites in the Mogollon area. In most instances the design consisted of an elaborate striped pattern that covered the entire surface of the pipe, although some pipes were painted a solid color while others had only a few stripes or dots (Fig. 4 a). Pipes were first slipped a solid color before application of the stripes, and as many as four different colors were used to decorate one pipe. Stripes ran lengthwise from bowl to stem end and panels of red, black, and green over a yellow slip, were common colors used to decorate these pipes. Several pipes had not been slipped but

were completely covered with painted stripes, and another was painted with an all red stripe decoration. Most of these pipes came from sites located in the Mimbres branch of the Mogollon area dating as early as Pueblo II at the Swarts Ruin and as late as the Pueblo IV period at Foote Canyon Pueblo. Other Mogollon examples, such as a pipe from Tularosa Cave, were not extensively painted. This pipe had a few stripes encircling the stem end and was found in a level dating from A.D. 1-400 (Georgetown phase), thus making it one of the earliest painted pipes found in the Southwest.

Painted tubular pipes from other areas do not exhibit the "over-all" decoration characteristic of Mogollon specimens. The two Anasazi examples had painted decoration around the bowl end only, and these pipes both came from sites dating from the Pueblo III period. The one other painted pipe was found at Ventana Cave in the Hohokam area. The paint was not visible with the naked eye, and was first detected under ultra-violet light. Haury (1950) found the pipe near the surface of the lower cave, and has assigned the pipe to the late prehistoric or historic period.

Painted tubular pipes were usually made of stone in the Mogollon area where this material was preferred over clay. The use of clay for making pipes was more typical of the Anasazi and most of the painted clay tubular pipes came from sites in this area dating, for the most part, from Pueblo III period. The Anasazi, however, used different painted designs that did not cover the entire pipe surface. The design elements corresponded with the ceramic patterns and were

usually limited to a particular portion of the pipe body (Fig. 4 a). In contrast the Mogollon used a variety of colors to cover the pipe surface, and painting in general was a more commonly used decorative technique.

#### Other Decoration

This category was included as a catch-all group in order to code irregularities which occurred infrequently in the sample. No significant statements will result from this grouping, although I will be able to point out odd decorative techniques that were employed by Southwestern craftsmen. Different techniques were applied to stone and clay pipes in this category, but none of these exterior additions change the actual form of the pipe.

The five pipes in this group have a varied temporal and areal distribution. The earliest of the two Mogollon specimens was found by Martin and Rinaldo (1960) at an early Pueblo I period site. This pipe was made of gypsum and the outside surface was fluted. Usually fluting is a plains or eastern characteristic that appears in the Southwest at a much later time period. The most abundant and impressive examples of fluting found in the Southwest come from the Pueblo of Pecos (cf. Kidder 1932: 167). The other Mogollon example, from the Point of Pines Ruin, has a raised beveled edge and dates to the Pueblo IV period.

At Pocket Cave, Morris (1959) found a pipe that was decorated with slight notches carved into the rim of the bowl at regular intervals. This cave site has been assigned to the late Basketmaker III

early Pueblo I period. The two remaining pipes both have raised bands on their surfaces, and date from historic period sites in the Hohokam area and in Southern California.

### Evidence of Smoking

Smoked tubular pipes were found in all areas of the Southwest and the several examples from the Cienega Creek site (Haury 1957) demonstrate the importance of pipe smoking as early as San Pedro Cochise times. During the early phases of Mogollon cultural development a number of smoked pipes appeared at the Bluff Ruin, Tularosa Cave, and San Simon Village, dating around A.D. 300. Furthermore, smoked tubular pipes continue to be found in all succeeding periods. In the Anasazi area, the nine smoked tubular pipes that were found all came from sites clustering temporally within the Basketmaker II-III time range, except for one example found at a Pueblo I period site. After Pueblo I times clay tubular pipes were the preferred type in the Anasazi area. Pipes from sites in the Southwestern periphery tend to date from the Basketmaker periods, although in the Hohokam area all the smoked tubular pipes were from late prehistoric or historic sites.

### Provenience

A discussion of the archaeological occurrence and distribution of pipes would not be complete without trying to establish the role of these items within the cultural system. Provenience data derived for each specimen and each type should enable me to further clarify

and define the use of pipes in a social context. As yet it is unclear whether pipes were used as freely for personal use as for ceremonial activities, or whether a certain type would be used ceremonially and another for personal smoking enjoyment. There are many other possibilities that must be explored in order to explain the status of pipes and the pipe smoker within the prehistoric community. A nonrandom distribution of a type, found primarily in association with ceremonial units, could indicate functional and social usage of this pipe type. This type of evaluation will be more pertinent after all types have been analyzed, when these different type associations become more obvious and when type distinctions may be compared. Many specimens could not be coded by provenience because of a lack of information.

Cave Sites: 25. Cave sites often contain large amounts of perishable cultural material as well as pipes that have been smoked. The appearance of smoked pipes implies that caves may have served as shrines or altars where meditative or group smoking took place. The early dates for these cave sites cluster around Basketmaker II and III, with Pueblo I representing the latest time period. After Pueblo I the use of caves for ceremonialism may have been superseded by the introduction of the kiva into the Southwestern architectural complex. Evidence for extensive post Pueblo I occupation of cave sites is limited for all types in the sample.

In the Anasazi area a number of tubular pipes came from Basketmaker caves dating as early as A.D. 200± 100 years at Woodchuck Cave (Lockett and Hargrave 1953); two other pipes came from Vandal

Cave (Haury 1936b) and Jemez Cave (Alexander and Reiter 1935) which probably date to the post-Basketmaker period. Pipes from Mogollon cave sites also date to the Basketmaker II period and at both Tularosa and Cordova Caves pipes were found in levels dating to the Georgetown phase. Another pipe from Tularosa Cave came from the later San Francisco phase and the pipe from Doolittle Cave (Cosgrove 1947) has been tentatively assigned to the Pueblo II period.

The four pipes from the Hohokam area were all from Ventana Cave, with three coming from the Chiricahua-Amargosa II level, dating around 2500-2000 B.C. These examples represent proof of the importance of the pipe as early as Chiricahua Cochise times, although since these pipes did not evince dottle ashes or interior charring, it is possible that they may have been used as shaman's sucking tubes. This idea was proposed by Heizer (1949) to explain the occurrence of pipes at Early Horizon (2500 B.C.) sites in California. The Ventana pipes may have been used as sucking tubes, but evidence suggests that pipes were known and smoked by Cochise times. The occurrence of pipes by 2500 B.C. in California presents the possibility of trade relations between this area and the Papaguera, and in this same time range, Jennings (1957) has reported bone tubes from Danger Cave that show interior charring. The appearance of pipes in association with Desert Culture material suggests that pipe smoking was a functional aspect of the total cultural system by at least 2000 B.C.

As just demonstrated, the Southwestern periphery has played an important role in producing evidence of early pipe smoking and

utilization. Seven specimens in this category were reported from the area of Utah and the Hueco Mountains of Texas. The three Texas pipes were found at Ceremonial Cave (Cosgrove 1947), and the Utah specimens from Cave DuPont, both caves dating to the Basketmaker II period. The one remaining pipe was from Mantles Cave in Colorado, dating to the Basketmaker III period, and considered part of the northern extension of the Fremont Culture (Burgh and Scoggin 1948).

Pithouse: 25. The sites where tubular pipes have been found in pithouse association are more limited spatially than the previous cave site grouping. Twenty-five pipes are represented in this category, all from Anasazi and Mogollon sites. Of particular interest is the clustering within these two subareas. Sites located along the Anasazi-Mogollon frontier, such as Twin Butte, Kiatuthlanna, Houck and others, show a blending or combination of cultural elements from both areas. When plotting the distribution of pipes I have carefully noted this area, not knowing whether to place items within a Mogollon or Anasazi context, and, in this particular category a large percentage of the sites are found in or near this transitional zone (Fig. 1).

The Mogollon specimens from the Black River and Forestdale branches represent some of the earliest known Mogollon material with both the Bluff Ruin and Crooked Ridge Village dating from Mogollon I times, equivalent to Basketmaker II in the Anasazi chronology. These two sites in particular show the association of pipes with pithouses, in addition to other sites from the Mimbres branch, namely the

Promontory and SU sites. The Anasazi sites cluster in a Basketmaker III-Pueblo I time range with most pipes coming from sites located in the transitional zone.

The individual pipes from these aforementioned sites are undistinguished, with little or no decoration, and none had an additional mouthpiece inserted. There was an obvious preference for stone tubular pipes as no clay examples were reported from this area in association with pithouses. This may be due to the later temporal distribution of clay pipes in general or it may indicate the dominance of Mogollon influence in the area. At this time the Mogollon were extending their cultural frontiers northward into the Anasazi region creating a transitional zone where varying degrees of cultural intergradation occurred. More study of sites in this transitional zone may produce evidence supporting the claim that this zone be considered a legitimate subarea of the Southwest (Fig. 1).

Pueblo: 40. Pipes found in surface masonry structures are more numerous and often come from large pueblo sites dating to the Pueblo III period and later. These pipes, forty in all, were distributed throughout the Anasazi, Mogollon and Hohokam areas, although in the Anasazi area they were restricted to Chaco Canyon and the area of the present day Hopi villages. Pipes from Pueblo Bonito date from the Pueblo III period, and the Hopi specimens were from the excavated historic pueblo of Awatovi. These pipes were not decorated and show no evidence of having been smoked. Decoration is characteristic of Mogollon tubular pipes, and especially examples from sites in the

Mimbres branch. These specimens exhibit elaborate painted surfaces and come from sites dating to the Pueblo II and III periods. Other tubular pipes from sites in the Black River branch, namely Turkey Creek Ruin and the Point of Pines Ruin, were not decorated and date from the Pueblo II and Pueblo IV periods respectively.

All thirteen Hohokam pipes were found in a cache at Tumacacori. In addition to being found in a cache all of the pipes showed evidence of smoking and several had incised decoration. The site was dated by pottery association and was occupied from A.D. 1300-1600.

Kiva: 6. It is significant that out of 152 stone tubular pipes only six were found archaeologically in kivas. If pipes were smoked ceremonially, and assuming that the ceremonies were conducted in large part in the kiva, then this evidence indicates that pipes were not stored in the kiva. Among modern Indian groups certain ceremonial equipment is traditionally stored in kivas, but pipes may have been personal possessions or belonged to clan chiefs in which case they were kept by individuals to be brought out for ceremonial use. Four of the examples found in kivas were from the sites of Te'ewi (Wendorf 1953b) and the Riana Ruin (Hibben 1936), both sites located in the Chama Valley and dating to the Pueblo IV period. These pipes were not decorated and showed no evidence of having been smoked. The two Mogollon specimens were elaborately painted with bevels near the bowl end for the attachment of feathers. They were found by Hough (1914) at the Spur Ranch site near Luna, New Mexico and were not dated by the author.

A cache of forty-six pipes, both stone and clay, was recently recovered from a kiva ashpit at Sapawe, a large Pueblo IV site in the Chama Valley, New Mexico (Johnson 1965). Additional information concerning this unusual cache is lacking, as the final analysis of the material from Sapawe is in preparation. This cache, however, indicates the possible importance of these pipes in kiva ritual.

Burial Association: 12. The stone tubular pipes included as grave goods came from sites in the Anasazi and Mogollon areas. Binford (1962) has suggested that burial accompaniments are indicative of ranking and status within the society. If a society has an egalitarian system of status grading then status symbols are not inherited at death, but are destroyed or buried with the individual. Since at this time we have no specific evidence indicating the importance of the pipe as a status symbol, or the importance of the pipe smoker within the society, observing situations where pipes were included with burials might lead to a more definitive statement on prehistoric social systems.

In the Anasazi area the tubular pipes found with burials were not decorated and had not always been smoked. These pipes came from sites dating as early as Basketmaker II times and as late as the Pueblo II period. At the Cienega Creek site Haury (1957) found several pipes in association with cremations dating as early as 500 B.C. These pipes were found with Cochise cultural material, but pipes from Mogollon sites date to the Pueblo II and III periods. From this small sample there is no obvious patterning to the association of

pipes with burials. Perhaps, when comparing all types in this category a more consistent pattern will appear that will have meaning in Binford's terms.

#### Archaeological Association

By dividing this category into ceremonial and non-ceremonial association, I had hoped to further define the functional context of the smoking pipe in the total cultural system. The results were unrewarding because very few authors mentioned the contextual association of the pipes. I have used the term ceremonial loosely, to include pipes found with burials, in caches, or pipes found in any context which could be construed as of a ceremonial nature. The non-ceremonial category included only six specimens which were found in firepits, wall niches, or on the floor of house structures.

Of the pipes coded in ceremonial association, most were found with burials or in caches. Those found with burials show no particular decoration or treatment to indicate special usage or status within the society. In two instances pipes were found with a burial where the authors feel that the pipe was originally in a pouch (Fulton 1938; Montgomery 1894). Morris (1925) reported finding a mummified burial in Mummy Cave, Canyon de Chelly, with a skin bag containing a pipe and other smoking materials. This individual was probably a shaman, as blowing smoke over a patient for curative purposes, and smoking to discover the causes of illness were common practices that are still used among Indian groups today.

In the Anasazi area three pipes were found with burials, the earliest was from Woodchuck Cave dating to the Basketmaker II period, and the two others were from a Pueblo I site near Albuquerque (Peckham 1957). At the Canyon Butte site, Hough (1903) found 12 stone pipes at a shrine, but neither description of this cache nor accurate dates for the site were given. Woodbury (1954), however, has assigned this site to the Pueblo III-IV period.

Other pipes found with burials came from sites in the Mogollon area dating from 500 B.C. at the Cienega Creek site (pipes found with cremations) through the Pueblo III period at the Turkey Creek Ruin.

At the late prehistoric and historic site of Tumacacori, DiPeso found a number of tubular pipes in a cache. These pipes were all smoked and had been carefully arranged in a circular formation.

I will refer to this category in greater detail when all the types have been described, and comparisons of temporal and spatial similarities and differences, within this single grouping can be discussed.

#### Areal and Temporal Distribution

Stone tubular pipes are commonly found in all cultural areas of the Southwest, except for the Hohokam region which is distinguished by cane cigarettes (Table 2). The exterior form of tubular pipes remained fairly uniform throughout the Southwest, although distinctive attributes characterize certain areas. Tubular pipes from the Mimbres branch show elaborate painted decoration with as much attention paid to style as in the well known Mimbres pottery types.

Table 2. Tubular Pipes: Stone

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Point of Pines	Pueblo Room 110	PIV	ASM files	Arizona State Museum No. A-18871; polished
Point of Pines	Pueblo Room 61	PIV	ASM files	Arizona State Museum No. A-11198
Point of Pines	Broadside #2	PIV (?)	ASM files	Arizona State Museum No. A-7706
Point of Pines	Pueblo Room 61	PIV	ASM files	Arizona State Museum No. A-10752
Point of Pines	Pueblo Room 1	PIV	ASM files	Arizona State Museum No. A-12468
Point of Pines	Pueblo Room 50	PIV	ASM files	Arizona State Museum No. A-8719
F:10:3	surface		ASM files	Arizona State Museum No. A-14979-1
F:10:3	surface		ASM files	Arizona State Museum No. A-14979-2
F:10:3	surface		ASM files	Arizona State Museum No. A-14979-3
Turkey Creek Ruin	Pueblo Room 104	1000-1285	ASM files	Arizona State Museum No. A-18575; burial assoc.; incised
Turkey Creek Ruin	Pueblo Room 104	1000-1285	ASM files	Arizona State Museum No. A-18576; burial 57
Turkey Creek Ruin	Pueblo Room 81	1000-1285	ASM files	Arizona State Museum No. A-18489; burial 53; smoked

Table 2. Tubular Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Jemez Cave	surface		Alexander and Reiter 1935	
Kinishba	Pueblo room	1250-1325	Baldwin 1939	
Tseh Tso		PII	Brand and others 1937	polished
Tseh Tso		PII	Brand and others 1937	polished
Mantles Cave		BMIII	Burgh and Scoggin 1948	
Ign. 7:23	refuse	EMIII	Carlson 1963	polished
Ign. 7:23	pithouse	EMIII	Carlson 1963	polished
Ceremonial Cave		BMII	Cosgrove 1947	smoked
Ceremonial Cave		EMII	Cosgrove 1947	smoked and polished
Ceremonial Cave		EMII	Cosgrove 1947	smoked and polished
Doolittle Cave		PII (?)	Cosgrove 1947	painted
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	painted
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	unfinished bore
Swarts Ruin	Pueblo Room 81	PII	Cosgrove and Cosgrove 1932	painted
Jeddito 264	pithouse	BMIII	Daifuku 1961	
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache

Table 2. Tubular Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache raised bands on body
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache, incised
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache incised
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956	Compound E, cache incised
Tumacacori	Pueblo room	1300-1600+	DiPeso 1956 Dittert and others 1961 Dittert and others 1961	
Texas Canyon			Fulton 1938	burial association, incised
Gleeson		PII	Fulton and Tuthill 1940	
Broken Roof Cave		EMII (?)	Guernsey 1931	polished and smoked
#1 Gobernador area		900 (?)	Hall 1944	
-- Pueblo Grande de Nevada		900 (?)	Harrington 1927	
Mogollon Village		900	Haury 1936a	San Francisco-Three Circle phase
Mogollon Village		900	Haury 1936a	San Francisco-Three Circle phase
Mogollon Village		900	Haury 1936a	Three Circle phase
Vandal Cave	pithouse	EMIII	Haury 1936b	smoked

Table 2. Tubular Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Ventana Cave		2000-1000 B.C.	Haury 1950	
Ventana Cave		2000-1000 B.C.	Haury 1950	
Ventana Cave		2000-1000 B.C.	Haury 1950	
Ventana Cave		late prehis- toric	Haury 1950	double bowled, smoked, painted
Cienega Creek		500 B.C.	Haury 1957	cremation
Cienega Creek		500 B.C.	Haury 1957	cremation
Cienega Creek		500 B.C.	Haury 1957	cremation
Pinedale Ruin			Haury and Hargrave 1931	polished
Bluff Ruin	test pit	300	Haury and Sayles 1947	Hilltop phase
Bluff Ruin	pithouse	300	Haury and Sayles 1947	Hilltop phase, smoked
Bluff Ruin	pithouse	300	Haury and Sayles 1947	Hilltop phase, smoked
Sacramento Valley		2500 B.C.	Heizer 1949	Windmiller facies
Sacramento Valley		2500 B.C.	Heizer 1949	Windmiller facies
Riana Ruin	kiva	PIV	Hibben 1936	
Malibu			Hodge 1946	raised bands, shell inlay
Malibu			Hodge 1946	bone stem, incised
Metate Ruin		PIII (?)	Hough 1903	
Canyon Butte		PIII (?)	Hough 1903	
Scorse Ranch		PIII (?)	Hough 1903	
near Alma, New Mexico			Hough 1914	bevel near bowl

Table 2. Tubular Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Martin Ruin			Hough 1914	bevel near bowl
near Springerville			Hough 1914	bevel near bowl
Arizona				
Spur Ranch			Hough 1914	beveled, painted
Spur Ranch	kiva		Hough 1914	beveled, painted
Spur Ranch	kiva		Hough 1914	beveled, painted
Tularosa Cave			Hough 1914	unfinished
near Tularosa River			Hough 1914	polished
Upper San Francisco			Hough 1914	beveled, painted
River				
Upper San Francisco			Hough 1914	painted
River				
unknown locality			Hough 1914	bevel near bowl
Chama Valley			Jeancon 1923	beveled, incised
Paragonah			Judd 1919	
Pueblo Bonito	Pueblo storeroom	PIII	Judd 1954	bone stem
Bluff Ruin	Pithouse 8	300	Kaemlein 1958	plug in bore, smoked
Alamagordo #2		PIV	Lehmer 1948	polished
Woodchuck Cave		BIII	Lockett and Hargrave	burial association
			1953	
near Raton, New	Pueblo room	PIII (?)	Lutes 1959	
Mexico				
SU	pithouse	500	Martin 1943	unfinished bore
Higgins Flat Pueblo		1250	Martin and others 1956	painted
SU	pithouse	500	Martin and Rinaldo 1947	
SU	pithouse	500	Martin and Rinaldo 1947	
#30	pithouse	600-800	Martin and Rinaldo 1960	fluted

Table 2. Tubular Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Promontory	pithouse	BIII	Martin, Rinaldo and Antevs 1949	Pine Lawn phase
Valley View Pueblo	Pueblo room		Martin, Rinaldo and Barter 1957	unfinished
Cordova Cave			Martin, Rinaldo and others 1952	
Tularosa Cave		700-900 (?)	Martin, Rinaldo and others 1952	San Francisco and Tularosa phases
Tularosa Cave		BIII	Martin, Rinaldo and others 1952 Montgomery 1894	painted; Georgetown phase in pouch with burial
Aztec Ruin		PIII	Morris 1919	
Aztec Ruin		PIII	Morris 1919	
La Plata District		BIII	Morris 1939	polished
Talus Village		BIII	Morris and Burgh 1954	
Talus Village		BIII	Morris and Burgh 1954	burial crevice
Broken Flute Cave		637	Morris 1959	wooden stem
Broken Flute Cave		637	Morris 1959	bone stem
Broken Flute Cave	Pithouse 9	625	Morris 1959	wooden stem, smoked
Cave 6		674	Morris 1959	smoked
Obelisk Cave		479	Morris 1959	smoked
Pocket Cave		early PI	Morris 1959	notches at bowl rim
Mattocks Ruin		PII (?)	Nesbitt 1931	
Starkweather Ruin	pithouse	PII	Nesbitt 1938	Three Circle phase
Starkweather Ruin	pithouse	PII	Nesbitt 1938	Three Circle phase
Cave DuPont		217	Nusbaum 1922	wall niche
Cave DuPont		217	Nusbaum 1922	wall niche

Table 2. Tubular Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
LA 3290	Pithouse 1	PI	Peckham 1957	burial #2
LA 3290	pithouse	PI	Peckham 1957	double bowl; bone stem, burial polished
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	
Foote Canyon Pueblo	Pueblo room	1245-1325	Rinaldo 1959	painted
Piedra District		BMIII-PI	Roberts 1930	
Kiatuthlanna	pithouse	PI	Roberts 1931	
F:2:1			Sayles 1936	smoked, Animas phase
San Simon Village		BMII	Sayles 1945	Mogollon 1
San Simon Village		EMII	Sayles 1945	Dos Cabezas phase
San Simon Village		BMII	Sayles 1945	Dos Cabezas phase
Grantsville		PI (?)	Steward 1936	wooden plug, polished
Beaver		PI (?)	Steward 1936	smoked
Kanosh	surface	historic	Steward 1936	polished
Paragonah		PI	Steward 1936	
Twin Butte	surface	BMIII	Wendorf 1953a	unfinished
Twin Butte	pithouse	BMIII	Wendorf 1953a	unfinished
Twin Butte	pithouse	EMIII	Wendorf 1953a	unfinished
Twin Butte	pithouse	BMIII	Wendorf 1953a	unfinished
Twin Butte	pithouse	BMIII	Wendorf 1953a	unfinished
Twin Butte	surface	BMIII	Wendorf 1953a	
Te'ewi	kiva	PIV	Wendorf 1953b	
Te'ewi	kiva	PIV	Wendorf 1953b	
Te'ewi	Pueblo room	PIV	Wendorf 1953b	

Table 2. Tubular Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Te'ewi	kiva	PIV	Wendorf 1953b	
near Aragon, New Mexico	Pueblo room	PIII	Wendorf 1954	incised and painted
Crooked Ridge Village	Pithouse 15	BMII	Wheat 1954	Early Circle Prairie
Crooked Ridge Village	Pithouse 8	BMII	Wheat 1954	Early Circle Prairie
Crooked Ridge Village	Pithouse 5	BMIII	Wheat 1954	Late Circle Prairie, incised
Crooked Ridge Village	surface	900 (?)	Wheat 1954	
Awatovi	Pueblo room	PIV	Woodbury 1954	polished
Awatovi	Pueblo room	PIV	Woodbury 1954	unfinished
Awatovi	Pueblo room	PIV	Woodbury 1954	unfinished
Awatovi	Pueblo room	PIV	Woodbury 1954	polished

In his study of the Mogollon prior to A.D. 1000, Wheat (1955) established six branches of the Mogollon culture. I have followed this classification for plotting sites and the distribution of pipes within this area. From a total of 61 stone tubular pipes found at Mogollon sites, the greatest number came from the Mimbres branch where such large sites as Swarts Ruin, Mogollon Village, and the SU site have been excavated. In contrast the Cibola and Jornada branches remain largely untested, and few pipes have been recovered from these regions. In general, pipes occurred in all branches of the Mogollon by A.D. 300 and as early as 500 B.C. at the Cienega Creek site. Cienega Creek specimens were found in association with cremations and demonstrate the use of pipes by the San Pedro Cochise peoples. The use of pipes continued through the Pueblo II and III periods in most branches, and as late as Pueblo IV times at the Point of Pines Ruin. These late sites were not typically Mogollon, but represent a blending of Anasazi and Mogollon traditions. By at least A.D. 1000 the Anasazi penetrated the Mogollon region and influenced many aspects of their culture. Pipes continued to be manufactured with few changes, although there was a noticeable decline in the number of painted pipes found, contrary to the usual Mogollon tradition.

Stone tubular pipes were found in Basketmaker II assemblages in the San Juan and Kayenta regions of the Anasazi area where numerous dry caves produced materials indicating an agricultural, non-pottery making stage of development beginning about A.D. 100. The San Juan plateau remained important during the Basketmaker periods and pipes

continued to be found at Basketmaker III sites from this area, as well as from the Twin Butte site in the transitional zone along the Anasazi-Mogollon frontier. By Pueblo times the importance of the San Juan area was declining with the ascendancy of Chaco Canyon and surrounding areas. Pipes from sites dating later than the Pueblo II period are rare in the San Juan, whereas no stone tubular pipes are reported earlier than Pueblo I times in the Chaco area. After Pueblo I, Chaco Canyon became the important cultural center in the Anasazi area. A number of pipes were also found at Awatovi, a Hopi pueblo dating into the historic period. Even though there are greater temporal differences between regions in the Anasazi area, there is little differentiation in pipe style. Techniques of painting and incising were not well developed, and few of the pipes show evidence of having been smoked. Since pipes first appear in the northern San Juan and Kayenta regions, with another early development along the Anasazi-Mogollon frontier, the latter area may have received an impetus from the Mogollon at an early time that accelerated the manufacture and utilization of pipes. The Chaco area became important during Pueblo I times, influencing the surrounding groups and initiating developments in the Rio Grande area.

In the Hohokam region pipes occur in association with Chiricahua Cochise material at Ventana Cave. These specimens date as early as 2000 B.C. and show no evidence of having been smoked. The other Hohokam pipes were found in a cache at Tumacacori and date to the late prehistoric and historic period. In the several thousand year span

between Chiricahua Cochise times and the historic period hardly any pipes occur at Hohokam sites. The cessation of pipe utilization in this area, and its reappearance several thousand years later makes for interesting speculation. Haury, after his initial research at Snaketown, discussed the possible development of the Hohokam from a Cochise base, although the lack of pipes in Hohokam archaeological assemblages does not support Haury's assumption. If the Hohokam were the descendants of the pipe smoking or pipe using Cochise peoples it is reasonable to assume that pipes would be found in Hohokam cultural assemblages. At present, after the re-excavation of Snaketown, Haury (1965) has altered his ideas on the origin of the Hohokam, and has suggested that they were intrusive in the area, probably the result of a migration from the south. Archaeologically, pipes are not found in Mexico until around A.D. 1000 (Porter 1948), although cane cigarettes were smoked at a much earlier time. Cane cigarettes were also the hallmark of the Hohokam, which substantiates Haury's more recent remarks about migrations. It is very possible that a group of people may have migrated into the Hohokam cultural area soon after A.D. 1, bringing with them the tradition of cigarette smoking, and introducing this smoking complex to the indigenous pipe smoking inhabitants of the area. The ease of making cane cigarettes and the ready supply of reeds (Phragmites communis), which grew along the Gila and other rivers in southern Arizona, may have influenced the indigenous peoples to switch from pipe to cigarette smoking.

The reappearance of pipes in the Hohokam area during the historic period may be explained by the intrusion of the Spaniards, who had learned about pipes and tobacco smoking from the Indians of Mexico.

The pipes from the Southwestern periphery were found mainly in Utah, except for three examples from Ceremonial Cave in the Hueco Mountains of west Texas. In Utah, pipes from Cave DuPont date as early as A.D. 217 (Breternitz 1966), although most examples came from Pueblo I period sites. A pipe from Mantles Cave in Colorado dates from Basketmaker III, and the examples from Ceremonial Cave also date from this time period.

Considering areas more removed from the Southwest, namely California and Mexico, the sample of pipes is not representative and the dating inadequate. Two of the California examples from the Sacramento Valley show the use of pipes as early as 2500 B.C. during the Early Horizon, but, since these pipes were not smoked Heizer has suggested that they may have been used for purposes other than smoking. The two Chumash steatite pipes from southern California are late prehistoric or historic in origin and no dates have been assigned to the four pipes found in northern Mexico.

#### Clay Tubular Pipes

Although clay tubular pipes occur as frequently as stone pipes their spatial distribution is more restricted. This factor as well as other elements, further differentiates these two groups on bases other than material.

### Interior Form

The internal construction of clay tubular pipes is remarkably uniform. The typical pipe has a distinctly widened bowl of varying depths which constricts toward the mouth end to form a narrow smoke passage (Fig. 2 a). The smoke passage was made by molding the clay around a small twig or grass stem which later burned out during firing and in some instances well defined imprints of these stems remain in the smoke passage. The bowls of the pipes were constructed by modeling the clay with the hands or by using a shaped object for the purpose of obtaining the desired bowl shape. After completion the bowl was carefully smoothed.

In the sample, sufficient information was available to determine the interior form of 37 pipes, 29 of which had the interior construction described above. Of these only two were found at sites outside of the Anasazi area. One clay pipe was found in southern Nevada dating from the Pueblo III period and the other came from a Pueblo II period site in the Sinagua area. The Anasazi specimens date as early as Basketmaker III times at sites in the LaPlata district and persist through the Pueblo IV period at Te'ewi, a large Pueblo site occupied from A.D. 1200-1500 (Wendorf 1953b).

Clay pipes without a distinct bowl and constricted smoke passage represent a negligible percentage of the sample. Six pipes had an interior form consisting of a straight tapering bore with no distinct separation into a bowl and stem (Fig. 2 c). They were all found in the Anasazi area at sites dating as early as Basketmaker III and as late as Pueblo III.

In terms of interior form clay tubular pipes represent a more standardized group than the stone variety. Since most clay pipes have a distinct bowl and smoke passage, there was less chance for tobacco to enter the smoker's mouth. I have encountered only a few instances where clay tubular pipes were found with a plug or "tobacco-stop" in place, and these examples all had straight tapering bores containing plugs scored lengthwise to prevent the passage of smoking material but allowing smoke to pass freely (Kidder 1932: 177). All these were found at the Pueblo of Pecos and were elaborately carved, incised and polished. Over 600 clay pipes were recovered from this site, many exhibiting decorative styles atypical of the Southwest. It is obvious that the geographical locale of Pecos and its late temporal affiliation made it a probable manufacturing center and recipient of outside influences, presumably from the east.

#### Exterior Characteristics

Since clay tubular pipes were characterized by a constricted smoke passage there was no reason to insert an additional mouthpiece, and none of the clay pipes in the sample were found with a bit in place. On occasion bits may have been used, but they have not been found in place archaeologically.

Beveling is not a common characteristic of clay tubular pipes either, and only five specimens exhibit this attribute. As noted previously, stone tubular pipes found in the Mogollon area were often beveled and painted, a combination not found in other areas, but characteristic of clay tubular pipes from the Mogollon area as well.

Beveling appeared on many of the clay pipes from the Pueblo of Pecos. Kidder established a pipe typology to classify the over 600 clay specimens found at the site, although he did not single out this effect for particular attention. He designated a group of pipes as aberrant forms (Kidder 1932: 172) most of which are obviously beveled. Many of these pipes look very phallic which may bring beveled pipes into the realm of fertility items.

#### Surface Treatment

The plastic quality of clay enabled the maker to experiment with numerous decorative techniques, and besides polishing, incising and painting, clay pipes were often slipped or had punctate designs impressed into their surfaces. Probably most of the clay pipes from this sample were fired although only 24 specimens were specifically described as having been fired.

#### Polishing

Several types of decoration were combined to adorn the surfaces of clay tubular pipes. Polishing was a common technique that occurred in association with painting, incising and slipping. The stone variety of tubular pipes exhibited fewer combinations of these decorative elements, whereas among clay pipes over half of the polished examples possessed two or more decorative characteristics, polishing and slipping being the most common combination. All 26 of the polished clay pipes were found at Anasazi sites, many coming from large Pueblo sites dating to the Pueblo III and Pueblo IV periods.

The earliest examples came from Pueblo I sites in the Piedra River section, although the greatest number were recovered from Paa-ko (Lambert 1954), a large Pueblo IV-V period site near Albuquerque.

### Slipping

A slip, as applied to clay pipes, is the overall coverage of the pipe surface with a solid color, usually white but the appearance of a slip does not necessarily mean additional painted decoration. Only three of the slipped pipes show additional painted decoration. Two of these exhibit a black linear design much like the black-on-white pottery typical of the Anasazi. Slipped pipes from Anasazi sites date as early as Pueblo I, but the majority of the examples came from Pueblo IV period sites. The only other slipped example was from the Mogollon area. This pipe had an elaborately painted exterior surface with a bevel near the bowl end, and it was found at Hooper Ranch, a site dating from A.D. 1200 to about 1375.

### Painting

Painted tubular pipes occur at an earlier time period and more frequently among the Mogollon, but since clay tubular pipes are more commonly found at Anasazi sites, most of the painted examples came from this area. Their earliest occurrence was at Pueblo Bonito where none of the three painted pipes had more than a few bands of design encircling the stem (Fig. 4 a). The two other examples were from Pueblo IV period sites and were similarly decorated. In the Mogollon area, however, the painting of tubular pipes showed greater

development and imagination which "may suggest eastern affiliations" (Haury 1936a: 125). As already demonstrated, many of the stone tubular pipes had several different colors integrated into an elaborate striped pattern, and one of the two painted clay tubular pipes from the Mogollon area also exhibits this decorative technique. This pipe dates from a late Pueblo III period site while the other Mogollon example had a Pueblo I origin.

### Incising

Incised lines either encircled clay pipes (Fig. 3 b) or ran lengthwise from end to end although one pipe had crosshatched lines on the top surface. None of these examples were painted, though incising does occur with other decorative attributes, usually polishing. A large number of polished and incised pipes were found at Paa-ko and Lambert (1954) believes that the incised lines were applied after firing. All of the pipes exhibited more than one incised line and there seems to be no apparent pattern to the placement or number of these striations.

Incised clay tubular pipes were found only at sites in the Anasazi area, some dating as early as the Basketmaker III period, but the greatest majority came from Pueblo IV period sites.

### Other Decoration

In this category, punctation and impressed designs constitute the most common form of decoration. The plastic nature of clay made it possible to produce these stylistic effects by punching a reed or

sharp stick into the surface of the pipe while the clay was still moist (Fig. 3 a). The result was an easily produced decorative technique that was aesthetically pleasing as well. Ten of the eleven pipes in this group have punctate decoration and the eleventh has two raised bands encircling the pipe near the mouth end. The placement and pattern of punctation on the pipe surface varied throughout the sample, although there were three distinguishable stylistic groups: pipes with longitudinal punctate decoration, those with decoration encircling the pipe body, and those exhibiting a combination of the two. There was no areal or temporal difference between the groups as all pipes with punctate decoration came from Anasazi sites, except for one from a site located in western Utah. Pipes with punctate decoration were found as early as the Basketmaker III period at Shabik'eshchee Village, but most came from sites dating to the Pueblo III period or later.

#### Evidence of Smoking

From this sample there is practically no evidence indicating that clay tubular pipes were smoked. Only four pipes show any bowl charring in contrast to the large number of stone tubular pipes that were definitely smoked. Throughout all clay pipe types, except for the elbow type, there is a consistent lack of bowl charring that is difficult to explain. As yet I am unable to account for this phenomenon, and can only speculate that clay pipes were used solely as cloudblowers or for purposes other than smoking.

### Provenience

Cave Sites: 4. Clay tubular pipes were rarely found at cave sites, which may be explained in part by the later temporal distribution of these pipes as compared to the stone variety. By Pueblo I neither stone nor clay tubular pipes were commonly found in caves.

Among stone tubular pipes there was a distinct correlation between being found in a cave and having been smoked. There are only four clay tubular pipes that were recovered from cave sites and two of these examples show interior charring. Since only four clay pipes in the sample had been definitely smoked prehistorically I am further convinced of this cave site - smoking correlation. The kiva became an essential part of the Southwestern architectural complex during Pueblo I times when pipes were no longer commonly found in cave sites. Over three times as many clay tubular pipes were found in kivas as stone pipes, which may indicate the replacement of caves by the kiva as a place for ceremonial smoking. This evidence coupled with ethnographic material pointing out the importance of cloudblowing during kiva ritual lends support to the hypothesis that clay pipes were used as cloudblowers rather than for tobacco smoking.

In the Anasazi area clay pipes were found at Jemez Cave (Alexander and Reiter 1935) and at an unnamed cave described by Guernsey (1931), dating to the late Pueblo I-early Pueblo II period. The pipe from Jemez Cave was found on the surface and cannot be accurately dated.

The two Mogollon pipes had both been smoked and came from cave sites manifesting long occupational sequences. Dick (1965) established a chronology for Bat Cave which tentatively places a pipe from that site at a Basketmaker III level of occupation. The other pipe, from Pine Flat Cave in the Black River branch was occupied from A.D. 950-1400 according to Gifford (1957), who thinks this example may be an Apache pipe of recent origin.

Pithouse: 14. The fourteen clay tubular pipes that were found in pithouses show no consistent decorative pattern and none have charred bowls. They were all reported from Anasazi sites that range temporally from Basketmaker III through Pueblo II times with the Basketmaker sites clustering in the northern San Juan area. Pithouses continued to be occupied after the onset of the Pueblo period as several pipes were recovered from pithouse villages near Taos and Zia Pueblo that persisted through Pueblo II. Because clay tubular pipes have later temporal origins than the stone variety it is expected that fewer would be found at pithouse sites. Almost twice as many stone tubular pipes were found in these structures, encompassing a wider geographical area, including the Mogollon region.

Pueblo: 46. Among the Mogollon clay was not widely utilized for making pipes and for this reason few examples occur during any phase of Mogollon cultural development. Bryan (1931) found a cache of eight clay pipes at the Galaz Ruin but besides this cache only two other examples were reported from house structures in the Mogollon area. These pipes, from Hooper Ranch and Pine Flat Cave, both date to the Pueblo IV period or later.

In the Anasazi area pipes were found at Pueblo sites dating from the Basketmaker III-Pueblo I period when above ground masonry structures were in an incipient stage of development. Pipes continued to be found throughout the sequence with the majority of the clay tubular pipes coming from sites in the Chaco and Rio Grande areas dating to the Pueblo III and Pueblo IV periods. These pipes show no evidence of having been smoked, although many of them have well decorated exterior surfaces. During the Pueblo III and Pueblo IV periods clay pipes increased in popularity judging from the large numbers recovered from Pueblo Bonito, Paa-ko, and Te'ewi. These sites housed large aggregates of people who were utilizing many clay pipes at a time of increased religious activity and experimentation in the Southwest.

Kiva: 20. By Pueblo IV the bearers of the Anasazi cultural tradition withdrew from recently occupied areas and moved into more circumscribed regions where they constructed large masonry pueblos such as Te'ewi and Sapawe. At these sites, and from the late Pueblo IV site of Paa-ko, a large number of clay tubular pipes have been found in kivas. It has been suggested that during this time religion became increasingly important with possible influences coming into the area from Mesoamerica (Brew 1944). The greater emphasis placed on religious performance may explain why such large numbers of pipes are found at these late occupation sites.

A total of 20 clay pipes in the sample were found in kivas, 17 of which came from Te'ewi and Paa-ko. A large number have also

been found in a kiva at Sapawe, but as yet there is no complete report on the excavation of this site. Although most of the pipes found in kivas came from Pueblo IV sites, several pipes were found at late Pueblo II sites in Chaco Canyon. At this time the Anasazi tradition was expanding into the northern peripheral area where Gillin (1941) found a clay pipe in a kiva dating roughly to the early pueblo period.

Burial Association: 4. The inclusion of clay pipes as burial accompaniments occurred in only four instances in this sample. These pipes show no particular attributes indicating special usage or personal attachment, and none of them have blackened bowls denoting use. All of the pipes were found at Anasazi sites ranging in time from the Pueblo I period through Pueblo IV. In the stone tubular category three times as many pipes were found with burials indicating either a preference for stone pipes for this purpose or that possibly clay and stone pipes were not considered of equal value.

#### Archaeological Association

The pipes found in a non-ceremonial context all came from sites in the Anasazi area clustering within the Chacoan region and dating from the Pueblo III period. Pipes found at Pueblo Bonito, Pueblo del Arroyo, and Pindi Pueblo were decorated with punctations and painted designs which negates the possibility that decoration was associated solely with ceremonial function, at least within the clay tubular variety and in the Anasazi area. The other six pipes comprising this non-ceremonial group were found in pairs in house structures at Pueblo Bonito, Pindi Pueblo and a late Pueblo I site (RB1006)

located in Tsegi Canyon, northeastern Arizona. Not enough evidence has been collected to make a statement concerning the paired occurrence of pipes in residence units, but this may be indicative of private ownership. On the other hand a pair of pipes may have had special significance for the individual, for a clan, or for ceremonial purposes.

The ten pipes designated as having ceremonial associations were found with burials and in caches. They showed no exterior decoration except for one polished pipe from Paa-ko. This example and another from Las Madres (Dutton 1964) in the Galisteo Basin were both found with burials and date from the Pueblo IV and late Pueblo III periods respectively. A cache of eight clay tubular pipes was reported by Bryan (1931) from the Galaz Ruin located in the Mimbres branch of the Mogollon area. These examples were found in a house structure, but the author provides no description of the individual pipes in the cache, nor does he place the site in time.

#### Areal and Temporal Distribution

By Basketmaker III times people in the San Juan and surrounding areas had settled into a more sedentary existence becoming more dependent upon agriculture and pottery making. It is during this period that the first clay tubular pipes appear in the Southwest (Table 3). They had their inception in the Anasazi area and retained their popularity there, coexisting with the stone variety during all phases following Basketmaker III. In other areas clay pipes did not fare as well. During Basketmaker III times the people living in the

Table 3. Tubular Pipes: Clay

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Jemez Cave	surface		Alexander and Reiter 1935	polished
NA 152		early PII	Bartlett 1934	
RB 1006	pithouse	PI	Beals, Brainerd and Smith 1945	
RB 1006	pithouse	PI	Beals, Brainerd and Smith 1945	
Cameron Creek Village	general fill		Bradfield 1931	
Galaz Ruin	Pueblo Room D		Bryan 1931	cache
Galaz Ruin	Pueblo Room D		Bryan 1931	cache
Galaz Ruin	Pueblo Room D		Bryan 1931	cache
Galaz Ruin	Pueblo Room D		Bryan 1931	cache
Galaz Ruin	Pueblo Room D		Bryan 1931	cache
Galaz Ruin	Pueblo Room D		Bryan 1931	cache
Galaz Ruin	Pueblo Room D		Bryan 1931	cache
Galaz Ruin	Pueblo Room D		Bryan 1931	cache
Ign. 7:31	pithouse	BMIII	Carlson 1963	incised
Ign. 7:23	pithouse	BMIII	Carlson 1963	
Bat Cave		BMIII	Dick 1965	smoked
Candelaria		PI	Dittert and Eddy 1963	polished and smoked
Serrano		PI	Dittert and Eddy 1963	polished and smoked
			Dittert and Eddy 1963	flanged mouthpiece
Las Madres		late PIII	Dutton 1964	burial association
Sikyatki		PIV+	Fewkes 1898	incised and polished with lateral flanges

Table 3. Tubular Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Sikyatki		PIV+	Fewkes 1898	incised
Sikyatki		PIV+	Fewkes 1898	polished and incised
Sikyatki		PIV+	Fewkes 1898	incised
Pine Flat Cave	Pueblo room		Gifford 1957	Apache pipe (?)
	pithouse	PII	Gilbert 1961	
Marysvale	kiva	PI (?)	Gillin 1941	
near Taos, New Mexico	pithouse	PII	Green 1963	
near Taos, New Mexico	pithouse	PII	Green 1963	
near Taos, New Mexico	pithouse	PII	Green 1963	horizontal incisions
cave above Poncho House		PI-PII	Guernsey 1931	
Mogollon Village		late PI	Haury 1936a	painting
Los Guanacos		PII	Haury 1945b	
Mesa House	Pueblo room	PIII (?)	Hayden 1930	
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	

Table 3. Tubular Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	
Arrowhead Ruin		PIV	Holden 1955	
Kawaiokuh		PIV+	Hough 1903	slipped and painted
Pueblo Bonito		PIII	Judd 1954	punctation
Pueblo Bonito	Pueblo room	PIII	Judd 1954	polished
Pueblo del Arroyo	kiva	PII	Judd 1959	punctate zigzags
Paa-ko	kiva	PIV	Lambert 1954	
Paa-ko	kiva	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	burial association
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	polished
Paa-ko	Pueblo room	PIV	Lambert 1954	polished
Paa-ko	Pueblo room	PIV	Lambert 1954	polished
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	kiva	PIV	Lambert 1954	
Paa-ko	test pit	PIV	Lambert 1954	punctation
Paa-ko	test pit	PIV	Lambert 1954	spiral incision

Table 3. Tubular Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Paa-ko	test pit	PIV	Lambert 1954	polished
Paa-ko	kiva	PIV	Lambert 1954	slipped and polished
Paa-ko	kiva	PIV	Lambert 1954	slipped and polished
Paa-ko	kiva	PIV	Lambert 1954	slipped and polished
Paa-ko	kiva	PIV	Lambert 1954	polished, slipped and incised
Paa-ko	kiva	PIV	Lambert 1954	polished and incised
Paa-ko	kiva	PIV	Lambert 1954	polished
Paa-ko	kiva	PIV	Lambert 1954	polished
Paa-ko	kiva	PIV	Lambert 1954	polished red
Paa-ko	kiva	PIV	Lambert 1954	polished brown
Paa-ko	Pueblo room	PIV	Lambert 1954	polished black, incised
Paa-ko	Pueblo room	PIV	Lambert 1954	polished and incised
Paa-ko	kiva	PIV	Lambert 1954	polished
Paa-ko	kiva	PIV	Lambert 1954	polished
Paa-ko	Pueblo room	PIV	Lambert 1954	slipped and polished
Paa-ko	Pueblo room	PIV	Lambert 1954	slipped and polished
Paa-ko	surface	PIV	Lambert 1954	slipped, polished, two raised bands near mouth end
Paa-ko	kiva	PIV	Lambert 1954	gray fragment
Mesa Verde	pithouse	BMIII (?)	Lancaster and Watson 1942	
Alamagordo #2		PIII+	Lehmer 1948	
Alamagordo #2		PIII+	Lehmer 1948	

Table 3. Tubular Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
#1	kiva	PI	Martin 1939	
#1	pithouse	PI	Martin 1939	
#1	Pueblo room	PI	Martin 1939	
Hooper Ranch	Pueblo room	late PIII	Martin, Rinaldo and Longacre 1961	bevel at bowl end, painted
La Plata region			Morris 1919	punctation
La Plata region		EMIII	Morris 1939	
La Plata region		BMIII	Morris 1939	
La Plata region		PI	Morris 1939	punctation
Mesa Verde	pithouse	750-800	O' Bryan 1950	
	surface		Owen 1956	
	surface		Owen 1956	
	surface		Owen 1956	
LA 3290	pithouse	PI	Peckham 1957	
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	painted
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	undecorated fragment
Pueblo Bonito	Pueblo Room 10	PIII	Pepper 1920	
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	slipped
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	fragment
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	painted
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	slipped and painted
Mancos Canyon	pithouse	BMIII	Reed 1944	La Plata Focus
La Boca			Roberts 1925	

Table 3. Tubular Pipes: Clay--Continued

<u>Sites</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Shabik'eshchee	pithouse	EMIII	Roberts 1929	punctuation
Shabik'eshchee	pithouse	EMIII	Roberts 1929	
Piedra District	refuse	EMIII-PI	Roberts 1930	
Piedra District	Pueblo room	EMIII-PI	Roberts 1930	burial association
Piedra District	Pueblo room	BMIII-PI	Roberts 1930	burial association, punctuation
Beaver		PI	Steward 1936	
Beaver		PI	Steward 1936	punctuation
Pindi Pueblo	Pueblo room	PIII	Stubbs and Stallings 1953	zigzag punctuation
Pindi Pueblo	Pueblo room	PIII	Stubbs and Stallings 1953	zigzag punctuation
Pindi Pueblo		PIII	Stubbs and Stallings 1953	shouldered
Pindi Pueblo		PIII	Stubbs and Stallings 1953	
Pindi Pueblo		PIII	Stubbs and Stallings 1953	
Pindi Pueblo		PIII	Stubbs and Stallings 1953	
Pindi Pueblo		PIII	Stubbs and Stallings 1953	
Pindi Pueblo		PIII	Stubbs and Stallings 1953	
Jeméz			Toulouse 1937	

Table 3. Tubular Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Pueblo del Arroyo	Pueblo room	PIII	Vivian 1959	fragment
Zia Pueblo area	pithouse	PII	Vytlacil and Brody 1958	
Te'ewi	trench fill	PIV	Wendorf 1953b	painted
Te'ewi	kiva	PIV	Wendorf 1953b	
Te'ewi	Pueblo room	PIV	Wendorf 1953b	
Te'ewi	Pueblo room	PIV	Wendorf 1953b	
Te'ewi	Pueblo room	PIV	Wendorf 1953b	
Te'ewi	Pueblo room	PIV	Wendorf 1953b	incised

Anasazi area were expanding southward and coming into contact with Mogollon groups "from whom they apparently acquired pithouses and pottery" (Kidder 1962: 38). The techniques of pottery making were acquired earlier by the Mogollon, although very few clay tubular pipes are found among the Mogollon before Basketmaker III times. It seems probable that the idea of making clay pipes entered the Mogollon region from the north, and was not well received. Clay tubular pipes occurred sporadically in most branches of the Mogollon, but they never rivaled the popularity of the stone tubular variety. The majority of the 15 clay tubular pipes found in the Mogollon area came from sites dating to the Pueblo II period and later, when the Mogollon were receiving and adopting a maximum of Anasazi traits. Without influence from the Anasazi at this time, it is doubtful whether clay tubular pipes ever would have been utilized by Mogollon groups.

The earliest clay tubular pipes were found by Morris (1939) and Carlson (1963) at early Basketmaker III sites in the northern portions of the Anasazi area. In the succeeding periods clay pipes continue to be found in all parts of the Anasazi area, with the majority coming from large pueblo sites dating to the Pueblo III and IV periods.

The extension of the Anasazi cultural tradition into the northern peripheral areas is shown at sites in Utah and southern Nevada where four clay pipes were found dating to the early pueblo occupation levels.

One pipe dating to the Pueblo II period was found in the Sinagua area, and another from the same occupational level was reported by Haury (1945b) from the site of Los Guanacos in the Hohokam area. Farther to the south, in Mexico, clay pipes were discovered in a shell mound on the coast of Sonora (Owen 1956). This site had not been dated, but the pipes were found in association with Seri cultural material and are probably of recent origin.

#### Bone Tubular Pipes

In the Southwest bone tubular pipes are rare items in archaeological assemblages, although bone tubes were frequently used as stems for stone and clay pipes. There are eight bone pipes in this sample, seven of them from sites in the northern periphery of the Southwest.

#### Interior Form

The bone tubular pipes from Danger Cave were made by cutting away sections of the long bones of animals and then grinding down the ends of these sections until they made suitable smoking pipes. The other examples were probably fashioned in the same way although the authors failed to discuss the manufacturing techniques. All the bone pipes must have had straight tapering bores, as the material would dictate such an interior structure. There is no evidence to indicate that any of these specimens were smoked with an additional mouthpiece.

### Surface Treatment

The only decorated pipe came from Danger Cave, and had incised cuts or scratches on the body of the pipe as well as around the mouthpiece. On the body, the incisions were well spaced and oblique to the long axis of the pipe. They do not completely encircle the pipe to produce a spiral effect, but appear to be only short parallel scratches embellishing the pipe surface. At the stem and the shallow incisions run vertical to the mouthpiece creating a notched effect around the rim.

### Evidence of Smoking

The five bone pipes from Danger Cave have been tentatively classified as smoking pipes although Jennings (1957) suggests that they may have been used as sucking tubes. Since all these pipes (?) have heavily carbonized interior surfaces I have assumed that they were used for smoking and have included them in this category. They were found in level V in the stratigraphic sequence dating as early as 2000 B.C. The only other smoked bone pipe came from Arizona W:10:56, a site located in the Black River branch of the Mogollon area dating to the Pueblo III period.

### Provenience

Most of the bone tubular pipes came from Danger Cave. Two other pipes from Utah were found in association with a kiva and a house structure. And at Arizona W:10:56 a bone pipe was found in a test trench.

### Areal and Temporal Distribution

The distribution of bone pipes is limited to the northern periphery of the Southwest, except for one example from a Mogollon site (Arizona W:10:56) dating to the Pueblo III period (Table 4). In Utah, pipes were found at Danger Cave and at Marysvale (Gillin 1941), a site in central Utah which has not been accurately dated. The Danger Cave examples were found in association with Desert Culture material indicating that smoking was definitely part of man's culture before the existence of sedentary traditions in the Southwest. Although, specimens from central California indicate an earlier inception of smoking in that area. If the pipes found in the Windmillier facies (of the Early Horizon in the Central California chronology) dating from 2500 B.C. were used for smoking, this suggests the possible diffusion of pipe smoking into the Southwest from a western source. Jennings (1957) however, has postulated "an essentially uniform Desert culture over the entire Great Basin at about 7000 to 3000 B.C." (1957: 283), indicating the appearance of a complex of traits over a wide area with the development of cultural distinctiveness at a later period. Pipes probably were not part of this trait complex, but occurred about 2000 B.C. in several distinct areas including California and the peripheral regions of the Southwest.

### Wood Tubular Pipe

Steamboat Cave (Cosgrove 1947), located in the Upper Gila River drainage of the Mogollon area, yielded the only wooden tubular pipe in the sample (Table 5). The type of wood was walnut, and the

Table 4. Tubular Pipes: Bone

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
W:10:56	Test Trench 20	PIII	ASM files	Arizona State Museum No. A-8213; smoked
Marysvale	kiva		Gillin 1941	
Marysvale	Pueblo room		Gillin 1941	
Danger Cave		2000 B.C.	Jennings 1957	incised, smoked; Level 5
Danger Cave		2000 B.C.	Jennings 1957	smoked, Level 5
Danger Cave		2000 B.C.	Jennings 1957	smoked, Level 5
Danger Cave		2000 B.C.	Jennings 1957	smoked, Level 5

Table 5. Tubular Pipes: Wood

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Steamboat Cave		BMII	Cosgrove 1947	bone stem; smoked

manufacturer carved the interior into a distinctly widened bowl with a narrow smoke passage (Fig. 2 a). In addition a small bone bit, made of bird bone, was inserted into the stem end of the pipe to facilitate smoking.

The exterior surface of the pipe was highly polished, and there was a heavy incrustation of carbonaceous material clinging to the bowl indicating prolonged usage.

Steamboat Cave contained primarily Basketmaker material culture and Cosgrove has equated this occupation with that of Basketmaker II in the Anasazi chronology.

#### Corn Cob Pipe

This unusual specimen was found at Painted Cave (Haury 1945a), a site located in the extreme northeast corner of Arizona in the San Juan drainage. The cave contained two distinct levels of occupation, one from Basketmaker II times, and the second during Pueblo III when house structures and other architectural features including a kiva were constructed inside the cave. The corn cob pipe dates from this latter occupation level, having been found in a trash deposit. Part of the interior of the corn cob had been gouged out to make a pipe bowl, and the stem consisted of a narrow smoke passage as indicated by the small perforation at the bit end of the pipe. The inside of the bowl was charred and the bit end showed staining indicating the usefulness of this corn cob pipe. The one tree ring specimen derived from the Pueblo occupation level produced a date of A.D. 1275 placing the second occupation of the cave well within the Pueblo III period (Table 6).

Table 6. Tubular Pipes: Corn Cob

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Painted Cave		1247	Haury 1945a	smoked

## CHAPTER 4

### TRUMPET-SHAPED TUBULAR PIPES

#### Clay

Trumpet-shaped tubular pipes have a limited temporal and spatial distribution in the Southwest as well as having a specialized bowl form. The bowl was not designed for holding tobacco and it is more likely that trumpet-shaped pipes were used as cloudblowers during ceremonial events (Fig. 4 b). These pipes were all made of clay and their delicate appearance may explain why so few examples have been recovered.

#### Interior Form

Trumpet or bell ended tubular pipes are characterized by a long narrow tubular stem, often several inches in length, which flares abruptly into a wide shallow bowl. Pepper states that "the form of the bowl suggests the squash flower, the emblem used on the end of flutes in certain ceremonial objects among the Hopi" (1920: 65). The shallowness and position of the pipe bowl indicates ceremonial usage of these pipes as regular tobacco smoking would be impossible.

The pipe stem was molded around a twig or grass stem like the clay tubular pipes, and the bowl must have been modeled with the hands. A narrow perforation extends the length of the pipe stem and neither plugs nor additional bits were found in association with these pipes.

### Surface Treatment

Trumpet-shaped tubular pipes were customarily decorated, although the four examples from Utah exhibit no surface ornamentation. Painted decoration characterizes the Anasazi specimens, with four of the five examples displaying painted black linear designs on some portions of the pipe surface (Fig. 4 a). In addition to painting, one pipe was slipped and another highly polished. This latter pipe came from a Pueblo I period site in the La Plata District (Morris 1939), and was the earliest trumpet-shaped pipe found.

Paint was applied to the body of the pipes, to the bowl, or to both areas, and the designs were of varying linear patterns. The four painted pipes were found at sites in the Chaco region of the Anasazi cultural area; one specimen from LA2505 (Bullard and Cassiday 1956) dating to the Pueblo II period, and the other three from Pueblo Bonito dating to Pueblo III times.

### Evidence of Smoking

The shallow flaring bowl of the trumpet-shaped pipe is certainly not conducive to holding even small amounts of tobacco which may explain why only one pipe shows any evidence of having been smoked. If these pipes were used as cloudblowers they were not smoked in the customary manner, but may have been "held a short distance from the lips as the priest blew into the lighted bowl and caused smoke clouds to issue from the opposite end" (Judd 1954: 301). Thus, the smoke was blown through the stem and out the bit end rather than being drawn into the mouth of the smoker and then expelled.

Judd has mentioned that this "procedure is clearly portrayed by Voth (1903: 15) in his description of the Oa'qol ceremony at Oraibi" (1954: 299). However, if this was the standard method of smoking these pipes, then more evidence of bowl charring should be apparent as ignited tobacco was placed in the pipe bowl. Morris has suggested an alternative method where the pipe was used only "for guiding expelled smoke drawn into the mouth from another source" (1939: 166). This procedure seems more plausible and in line with the evidence, as no tobacco stains would be found in the pipe bowl.

Most authors are in agreement that trumpet-shaped tubular pipes were a specialized item used in a ceremonial context, and the provenience data supports this contention as a large percentage of these pipes were found in kivas.

#### Provenience

There was no provenience data for four pipes in the sample, but the other five examples were all found in kivas. This association, the unusual non-utilitarian form, and the relatively few trumpet-shaped tubular pipes found, point to the specialized usage of these pipes for specific ceremonial events. Because these pipes were frequently found archaeologically in kivas, they were probably stored there for the exclusive use of the religious functionaries.

#### Areal and Temporal Distribution

Trumpet-shaped tubular pipes have a restricted distribution limited to the Anasazi area and the northern periphery of the

Southwest (Table 7). Temporally they occur as early as Pueblo I times in the La Plata District of the Anasazi area, and one pipe was found at LA2505, a Pueblo II period site located near Gallup, New Mexico. However, the pipes from Pueblo Bonito exhibit more decoration and were used during Pueblo III times when religious specialization reached its peak in the Southwest.

Of the four trumpet-shaped pipes found in Utah, only two came from sites which were well dated, one from Paragonah (Steward 1936) dating to Pueblo I times and the other from Alkali Ridge (Brew 1946), a Pueblo II period site. After Pueblo II times the northern periphery was gradually abandoned and Kidder (1962) suggested that these people moved south joining groups in the San Juan area.

Table 7. Trumpet-Shaped Tubular Pipes: Clay

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Alkali Ridge	kiva	PII	Brew 1946	
LA 2505	kiva	1047	Bullard and Cassidy 1956	· painted
Paragonah			Judd 1919	
Paragonah			Judd 1919	
Pueblo Bonito	kiva	PIII	Judd 1954	painted
Pueblo Bonito	kiva	PIII	Judd 1954	painted
La Plata area		PI	Morris 1939	polished
Pueblo Bonito	kiva	PIII	Pepper 1920	painted
Paragonah			Steward 1936	bore unfinished

## CHAPTER 5

### SHORT CYLINDRICAL PIPES

Initially I had considered calling this type short tubular, making it a variety of the tubular type. After analysis, however, it was obvious that the pipes differed from the tubular type in enough categories to warrant a separate type notation. Thus, these pipes will be considered as a separate type based on their short cylindrical form (Fig. 3 c, d). As in the tubular type the form is not completely standardized, and slight variations occur throughout the sample. Short cylindrical pipes vary from a barrel-shaped pipe to a straight-sided form to one which has straight sides tapering slightly toward the stem end. They were usually made of stone, although a few clay specimens have been found.

#### Stone Short Cylindrical Pipes

##### Interior Form

Only one stone pipe from the sample had an interior form that was separated into a pronounced bowl and smoke passage. The other examples either had a straight bore with no distinction between bowl and stem except for a perceptible taper toward the stem end, or they were drilled from both ends producing an hourglass-shaped bore (cf. Wendorf 1953a: 135, Fig. 81 d).

The most common interior form was the straight tapering bore which was constructed by drilling the pipe from one end. Since many of these short cylindrical pipes were only a few centimeters in length, this type of interior construction would be most practical. There are 14 pipes possessing this type of interior form, and all of them were reported from sites in the Mimbres branch of the Mogollon area. A large group of these (nine) were found at the SU site which has been assigned a late Basketmaker II level of occupation, and another pipe from the Promontory site dates to this same time period. Other specimens were found at sites dating from the Basketmaker III period through Pueblo II times.

There are nine short cylindrical pipes that were manufactured by drilling the pipe bore from both ends, and although more pipes may have been constructed in this manner, few authors furnish adequate data on the interior form of pipes. By utilizing this method of manufacture, a pipe could be created with relatively little effort, and within a short period of time. In the tubular type, pipes drilled from both ends were reamed out to produce a smooth bore, but in this type many of the pipes have an hourglass-shaped bore (Fig. 3 d), a result of drilling from each end with no further reaming out of the interior surface.

In this group as well, we find that the stone short cylindrical pipes were restricted, for the most part, to the Mogollon area, where three of these pipes were found at Crooked Ridge Village dating from the early Circle Prairie phase (A.D. 1-400) (Wheat 1955). It

seems evident that during Basketmaker II short cylindrical pipes were made only by the Mogollon, although by the succeeding Basketmaker III period Mogollon influence was spreading northward toward the Anasazi region, as confirmed by the appearance of short cylindrical pipes at the Twin Butte and Flattop sites located along the Anasazi-Mogollon frontier. These pipes were all made of vesicular basalt and Wendorf (1953a) assumes that they were smoked with the aid of a bone bit, but there is no definite evidence to confirm this assumption.

The one pipe with a differentiated bore, separated into a distinct bowl and stem, was drilled from each end and the bowl occupied more than half of the length of the pipe. The stem was very short and not constricted, and the remains of cementing material in the stem indicates the use of a separate mouthpiece. This pipe was found in an early Circle Prairie phase pithouse at Crooked Ridge Village.

#### Exterior Characteristics

It is doubtful whether short cylindrical pipes could have been smoked effectively without the use of a separate bit (Fig. 3 c). The short, stubby pipe body with a straight undifferentiated bore would necessitate an additional bit for several reasons. Firstly, a bore that is not separated into a distinct bowl and stem provides no natural obstacle to keep burningsmoking material from entering the smoker's mouth, and no plugs have been found in association with these pipes. The use of a bit fitting snugly into the stem end of the pipe would act as an obstruction, restricting the flow of tobacco.

Secondly, as the smoker held this short pipe to his lips the glowing tobacco would burn his mouth, and the pipe itself would become too hot to handle comfortably. The supplemental bit would alleviate this problem by allowing the smoker to inhale without burning his mouth, as ideally the bit should not be in direct contact with the burning tobacco. On this premise I have inferred that short cylindrical pipes were smoked, in most instances, with an additional bit although the data from this sample does not support this inference. Only seven pipes were found with a bit still in place, but in six instances authors inferred that a bit had been used when the pipe was smoked. The likelihood exists that many more pipes were smoked with a bit than the archaeological evidence indicates, as through time bits disintegrate or become separated from the pipe itself. In some instances remnants of the cementing material remain in the pipe stem permitting a conclusive statement about former smoking habits. The pipes that were found with bits still in place came mainly from Mogollon sites dating to the Basketmaker period, although by Pueblo I these pipes appeared at sites in the transitional zone. During this period a pipe was found by Hester and Shiner (1963) at an Anasazi site located in the Navajo Reservoir District.

Another pipe with a bone bit still in place was found by Lambert and Ambler (1961) at U-Bar Cave in southwestern New Mexico. This pipe dates from the Animas phase of the Casas Grandes Culture (A.D. 1350-1400).

### Surface Treatment

Stone short cylindrical pipes are not characteristically decorated, as only one specimen from the sample shows any evidence of surface decoration. This example was made of steatite and was reported by Judd (1959) from Pueblo del Arroyo in the Anasazi area. The pipe was highly polished, and was found in a house structure dating to a late Pueblo II level of occupation.

### Evidence of Smoking

Seven pipes in the sample were definitely smoked. Three of these examples were found in the Mogollon area and one was from the transitional zone along the Anasazi-Mogollon frontier (Fig. 1). These pipes all date from early periods in the Southwestern prehistory, affirming the importance of pipe smoking within the cultural system by Mogollon I times (Basketmaker II times in the Anasazi area). Wheat (1954) reported two smoked short cylindrical pipes from Crooked Ridge Village dating from the early Circle Prairie phase. The other Mogollon specimen was found in the lower half of level 1 at Bat Cave. In this level there was considerable mixing and Dick (1965) has been unable to assign specific dates for the sequence. No pipes were found below the pottery level at Bat Cave, although the cave was occupied during Cochise times.

The one pipe from the transitional zone showing evidence of smoking was found at the Flattop site, which according to ceramic evidence was occupied during the same time period as the Bluff Ruin and Bear Ruin in the Mogollon area. These sites date to the Basketmaker

II-Basketmaker III period which suggests the diffusion of the short cylindrical pipe from a Mogollon source into the Anasazi region.

The two other smoked short cylindrical pipes were found to the south, one in the Hohokam region, and the other in the area encompassing the Casas Grandes Culture in southwestern New Mexico. Both sites date from post A.D. 1350.

### Provenience

The distribution of short cylindrical pipes within the site complex is largely restricted to specific residence units. A few pipes were found in puebloan house structures or at cave sites, but the bulk of the examples came from pithouses. Short cylindrical pipes may have been individually owned as they were undecorated, easily constructed, and found archaeologically in association with pithouse structures.

Cave Site: 3. Three pipes were found at cave sites, two from the Mogollon area and one from the Casas Grandes culture area of southwestern New Mexico. The latter pipe was found at U-Bar Cave in a level dating around A.D. 1350-1400, and the two pipes from Mogollon sites, Bat Cave and O Block Cave (Martin, Rinaldo and Bluhm 1954), date to Basketmaker III and Pueblo I periods respectively.

Pithouse: 23. Of the 23 short cylindrical pipes recovered from pithouses, 19 were from sites in the Mogollon area, and four from sites in the transitional zone. The majority of Mogollon specimens came from sites assigned to the Basketmaker II level of occupation. However, pipes from the Turkey Foot Ridge site (Martin and

Rinaldo 1950) were found in pithouses constructed during the Three Circle phase, dating around A.D. 900-1000 (Pueblo II). Short cylindrical pipes are characteristic of the Mogollon in the early time periods and by late Basketmaker III and early Pueblo I times they had diffused north into the Anasazi-Mogollon frontier area, as evidenced by the examples occurring at pithouses at Kiatuthlanna (Roberts 1931) and the Twin Butte site (Wendorf 1953a).

Pueblo: 2. By Pueblo I when the unit type dwelling was the prevailing form there was a definite decline of the short cylindrical type of pipe. Two pipes were found in puebloan structures, one in the Anasazi area at Pueblo del Arroyo dating to a Pueblo II level of occupation; the other, from Tumacacori in the Hohokam region assigned to the historic period.

Burial Association: 1. In only one instance in the sample was a short cylindrical pipe found with a burial. The site was located in the Navajo Reservoir District, and the authors (Hester and Shiner 1963) have tentatively assigned the site to the Piedra phase dating around A.D. 850-950. If short cylindrical pipes were personal possessions they were not considered status objects or important personal items to be buried with the individual.

#### Archaeological Association

The pipe from U-Bar Cave was certainly found in a ceremonial context as the pipe itself was in a net bag in association with numerous items connected with the hunt, including a large hunting net made of human hair, snares, netted carrying bags, and a hunting shrine

with arrows and pahos around it. The authors feel that the hunting net and accompaniments were taken into the cave for special ceremonies preceding the hunt, and were left in a cache for the hunters when they returned for the actual hunt (Lambert and Ambler 1961: 41). Because of its association, it is reasonable to assume that the pipe was smoked during the pre-hunt ceremony, and this may explain why so many smoked tubular pipes have been found at cave sites. Although the pipes often remain it is unusual to find large amounts of perishable material such as at U-Bar Cave. This find and the ceremonial nature of the material has provided valuable information leading to the partial definition of the status of pipes within the prehistoric community. The ceremonial function and possible seasonal occupation of this cave may indicate another role of the pipe. The ceremonial aspects of pipe smoking are well known from ethnographic studies, though it has not been established whether individuals or groups of people were sanctioned to use pipes in a given situation. If seasonal occupation sites were thoroughly investigated, and if pipes were found at such sites, then we could infer that hunting parties or family groups might carry a pipe with them to smoke for success in the hunt or for success in other endeavors.

#### Areal and Temporal Distribution

The distribution of short cylindrical pipes is significantly restricted to the Mogollon area and the transitional zone between the Anasazi and Mogollon regions and pipes found in other areas represent a very small portion of the sample (Table 8). In this

Table 8. Short Cylindrical Pipes: Stone

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Tuzigoot		PIII	Caywood and Spicer 1935	
Bat Cave		BMII-III	Dick 1965	
Tumacacori	Pueblo room	PIV	DiPeso 1956	
Harris Village		PI	Haury 1936a	
Todosio Rock Shelter		PI	Hester and Shiner 1963	bone stem; burial
Milk Hollow		PIII-IV	Hough 1903	bone stem
Milk Hollow		PIII-IV	Hough 1903	bone stem
Scourse Ranch		PIII-IV	Hough 1903	
Canyon Butte		PIII-IV	Hough 1903	
Milky Wash Ruin		PIII-IV	Hough 1903	bone stem
Pueblo del Arroyo	Pueblo room	1052-1117	Judd 1959	
U Bar Cave		1350-1400	Lambert and Ambler 1961	in net bag at hunting shrine; bone stem
SU	pithouse	500	Martin 1943	bone stem
SU	pithouse	500	Martin 1943	
SU	pithouse	500	Martin 1943	
SU	surface	500	Martin 1943	bore unfinished
SU		500	Martin 1943	
SU	pithouse	500	Martin 1943	
SU		500	Martin 1943	
SU	pithouse	500	Martin and Rinaldo 1940	
SU	pithouse	500	Martin and Rinaldo 1940	
SU	pithouse	500	Martin and Rinaldo 1940	

Table 8. Short Cylindrical Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
SU	pithouse	500	Martin and Rinaldo 1947	bore unfinished
SU	pithouse	500	Martin and Rinaldo 1947	bore unfinished
SU	pithouse	500	Martin and Rinaldo 1947	bore unfinished
Turkey Foot Ridge	pithouse	900-1000	Martin and Rinaldo 1950	Three Circle phase
Turkey Foot Ridge	pithouse	PI	Martin and Rinaldo 1950	
30	pithouse	600-800	Martin and Rinaldo 1960	unfinished
Promontory	pithouse	?-500	Martin, Rinaldo and Antevs 1949	Pine Lawn phase
Promontory	pithouse	?-500	Martin, Rinaldo and Antevs 1949	Pine Lawn phase
O Block Cave		1000	Martin, Rinaldo and Bluhm 1954	
Kiatuthlanna	pithouse	PI	Roberts 1931	
Kiatuthlanna	pithouse	PI	Roberts 1931	
Kiatuthlanna	pithouse	PI	Roberts 1931	bone stem
Beaver		PI	Steward 1936	unfinished bore
Flattop	surface	300-600	Wendorf 1953a	
Flattop	surface	300-600	Wendorf 1953a	
Twin Butte	surface	BMIII	Wendorf 1953a	
Twin Butte	surface	BMIII	Wendorf 1953a	unfinished

Table 8. Short Cylindrical Pipes: Stone--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Twin Butte	pithouse	EMIII	Wendorf 1953a	
Crooked Ridge Village	Pithouse 11	100-400	Wheat 1954	Early Circle Prairie
Crooked Ridge Village	Pithouse 9	100-400	Wheat 1954	Early Circle Prairie
Crooked Ridge Village	Pithouse 7	100-400	Wheat 1954	Early Circle Prairie
Crooked Ridge Village	Pithouse 7	100-400	Wheat 1954	Early Circle Prairie

section I am treating the transitional zone as a distinct region because a significant number of pipes were reported from sites in this area, clustering within a specific time range.

The Mogollon specimens, 26 in number, were found mainly at sites located in the Mimbres branch, although these sites are not temporally distinct from those in the Black River or Forestdale branches. Dates for these sites cluster around Basketmaker II times with two specimens from Turkey Foot Ridge and O Block Cave dating as late as the Pueblo III period.

In the transitional zone the main sites, Twin Butte and Kiatuthlanna, date within the Basketmaker III-Pueblo I temporal range with two pipes from the Flattop site possibly dating as early as Basketmaker II. A number of short cylindrical pipes were found at sites surveyed by Hough (1903) that have not been well dated or described in the literature. The artifactual assemblages from these transitional zone sites represent a combination of Anasazi and Mogollon cultural material with influences coming into the area from the Mogollon during Basketmaker times. Short cylindrical pipes were one of the items that diffused north, but did not penetrate the heartland of the Anasazi region. Only two pipes were reported from Anasazi sites, one from the Todosio Rock Shelter in the Navajo Reservoir District dating to Pueblo I times, and the other from Pueblo del Arroyo, found in a Pueblo II period house structure.

The Hohokam were traditionally cane cigarette smokers, although stone short cylindrical pipes occur with the same frequency

in this area as among the Anasazi. Pipes were found at two sites, one in the Verde Valley and the other in the desert region of southern Arizona, both having been occupied after A.D. 1200. The pipe from Tuzigoot (Caywood and Spicer 1935) dates from the Pueblo III period, and Tumacacori is a late prehistoric and historic period site.

Short cylindrical pipes also occur in areas peripheral to the traditional Southwestern boundaries. In Utah, Steward (1936) reported a pipe made of volcanic tuff from a site occupied during Pueblo I times, and another pipe was from U-Bar Cave located in southwestern New Mexico.

It is obvious that short cylindrical pipes probably originated in the Mogollon area, diffusing at an early time period into the transitional zone separating the Anasazi and Mogollon regions. The Anasazi did not accept this pipe type, however, and by Pueblo I times the direction of influence had been reversed causing the demise of this pipe type.

#### Clay Short Cylindrical Pipes

The few short cylindrical pipes made of clay have the same distribution as the stone variety, although they date to a later time period.

#### Interior Form

It is difficult to compare the internal form of these pipes and those of the stone variety, as in only two instances did the authors discuss the interior form of clay pipes. The pipe found at

the Mineral Creek site had a bore separated into a distinctly widened bowl and constricted smoke passage. This pipe was probably made in a mold, and the authors suggest "that a lump of wet and plastic clay was pressed into a mold, a bowl hollow pressed in one end and a stick thrust through at the stem end. Then the pipe was left to dry and shrink so that it would drop out of the mold" (Martin, Rinaldo and Longacre 1961: 65). The mold was part of the artifactual assemblage and this technique for manufacturing clay pipes has not been discussed in the literature previously.

At the Grasshopper Ruin a clay short cylindrical pipe was found which had a straight tapering bore. This type of interior construction was typical of the stone cylindrical pipes, but there is not enough information to characterize the clay form.

There is no definite evidence indicating that these pipes were smoked with the aid of a bit. None of the pipes were found with a bit in place, although several authors suggest that a bit had been used when smoking the pipe.

#### Surface Treatment

Surface decoration is not characteristic of short cylindrical pipes, although the clay pipes exhibit more embellishment than the stone group. In this group of nine clay pipes only two specimens, both from Mogollon sites, show elaborate decoration which supports the hypothesis that the Mogollon were the principal innovators of pipe decoration.

Combinations of decorative attributes occurred on clay short cylindrical pipes as two examples were polished and slipped, a common pairing of traits occurring in the clay tubular type. In addition to polishing and slipping, one pipe found at the Mineral Creek site, was painted as well. This particular pipe was slipped white with a red-brown painted design applied to its surface, and it dates from a late Pueblo II-early Pueblo III level of occupation. The other slipped pipe, which was not painted, was found at Harris Village (Haury 1936a), a site assigned tentatively to Pueblo I-II time range. At the time that these sites were occupied the Mogollon were in the process of changing from a distinct cultural entity to one that was a blend of Mogollon and Anasazi cultural traditions. During this period the Mogollon continued making the same type of pipe (short cylindrical), but they began experimenting with a new material, clay. Only a few clay short cylindrical pipes appear at Mogollon sites and it is possible that the idea of using clay for making these pipes was introduced by the Anasazi. Clay was either unsatisfactory for this type of pipe or pressures from the Anasazi restricted the production of this pipe type since not only do very few occur, but they all date to post-Pueblo I times. However, of the seven clay short cylindrical pipes found in the Mogollon area, two were well decorated, a feature which is not characteristic of this type. It is possible that with the use of clay further experimentation took place including the slipping and painting of this pipe type.

### Evidence of Smoking

From this small sample of nine clay short cylindrical pipes, there is no visible indication that the pipes were smoked, although evidence in the stone variety indicated aboriginal smoking. Since neither clay tubular pipes nor clay short cylindrical pipes show evidence of bowl charring the possibility exists that the carbonaceous material may have been leached out over a period of time. If the pipes were recovered from open sites this idea should be viewed with more credence.

### Provenience

Pueblo: 4. Although the majority of short cylindrical stone pipes were found in pithouses, none of the clay pipes were found in these structures or at cave sites. Because clay pipes were recovered from sites occupied significantly later in time than the stone examples, they were found mostly in surface masonry structures. Only five pipes in this sample of nine clay short cylindrical pipes had enough provenience information to be coded within this category. Four pipes were found in surface structures, two at the Swarts Ruin (Cosgrove and Cosgrove 1932) and the other two from the Grasshopper Ruin, both Mogollon sites, dating to Pueblo II and Pueblo IV periods respectively.

Burial Association: 1. A pipe with slipped decoration was found with a burial at Harris Village. This site is located in the Mimbres branch of the Mogollon area and has been provisionally assigned to a Pueblo I-II temporal range.

### Areal and Temporal Distribution

The distribution of short clay cylindrical pipes is centered within the Mogollon region, with seven pipes coming from this area and two from Anasazi sites (Table 9). This distributional apportionment coincides with the stone grouping, although temporally, clay pipes represent a later period. Clay pipes in the Mogollon area come from sites in the Mimbres and Forestdale branches with sites from each branch differing in time. The pipes from sites in the Mimbres branch, Harris Village and the Swarts Ruin, date within the Pueblo I-Pueblo II time range; whereas the Mineral Creek site and the Grasshopper Ruin, located in the Forestdale branch, date to the Pueblo III and Pueblo IV periods respectively.

Short cylindrical pipes were not part of the Anasazi cultural tradition, although two clay pipes were reported from this area. One pipe was found at Pindi Pueblo (Stubbs and Stallings 1953) which was occupied during late Pueblo III and early Pueblo IV times and the other from the La Boca site (Roberts 1925) in southwestern Colorado was not dated.

Table 9. Short Cylindrical Pipes: Clay

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Grasshopper Ruin	Pueblo Room 7	PIV	ASM files	
Grasshopper Ruin	Pueblo Room 14	PIV	ASM files	
Cameron Creek Village			Bradfield 1931	
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	
Harris Village	refuse	PI (?)	Haury 1936a	slipped; burial
Mineral Creek		PIII	Martin, Rinaldo and Longacre 1961	polished, painted
La Boca			Roberts 1925	
Pindi Pueblo		PIII	Stubbs and Stallings 1953	

## CHAPTER 6

### CONICAL PIPES

Conical pipes resemble the tubular type, but instead of a straight sided appearance, the conical pipes are usually short in length and have a wider, flaring bowl. In the literature, these pipes are often referred to as cloudblowers, and, although this may have been one of their functions, they were probably used for actual smoking as well. The majority of the conical pipes were made of clay and were restricted spatially to the Anasazi area. This distribution parallels that of other clay pipe types which are found predominantly among the Anasazi, with only scattered examples appearing in other areas.

#### Clay Conical Pipes

##### Interior Form

An interior form consisting of a rounded bowl and narrow constricted stem characterizes clay pipe types, and the clay conical pipes are no exception. Thirty-eight clay conical pipes were found with this type of interior construction. None of these examples were smoked with a bit since the constricted stem forms an adequate mouth-piece in itself (Fig. 3 b). The spatial distribution of this group of pipes with a differentiated bore was restricted in large part to the Anasazi area, and more specifically to the northern regions

where 29 pipes were found, with all but one example coming from sites in the Four Corners area. The five Mogollon examples were found at Bear Ruin (Haury 1940) and a few other clay conical pipes have been reported from sites in the Hohokam, Sinagua, and northern peripheral areas.

Temporally, these conical pipes date as early as Basketmaker II and persist through the Pueblo II period with a few examples occurring after this time. In the Anasazi area three pipes were found at Obelisk Cave (Morris 1959), a site dating from the year A.D. 479, according to tree ring analysis; but, the majority of the Anasazi examples came from sites assigned to the Basketmaker III period. At this time clay conical pipes were at the height of their popularity and only three examples came from sites dating to the succeeding Pueblo I period.

The five Mogollon examples from Bear Ruin date to the late Basketmaker III early Pueblo I period, although pipes from the Sinagua, Hohokam, and northern peripheral area date to Pueblo II times and later.

None of the authors reported finding clay conical pipes which had been made by puncturing the pipe from both ends to construct the bore. There are, however, seven examples which have straight tapering bores, a type of interior construction characteristic of stone pipes in general. These pipes were found in the Mogollon area and at sites near Taos in the Anasazi region. The Anasazi examples were found at Valdez phase occupation sites (Green 1963) that date to the Pueblo

II period, and one of the Mogollon pipes date to a Pueblo III level of occupation. The other Mogollon pipe came from the SU site (Martin and Rinaldo 1947) which dates around A.D. 450-500 according to a recent re-evaluation of the tree ring material (William J. Robinson, personal communication).

#### Surface Treatment

Clay conical pipes are not well decorated and only a few specimens show evidence of surface treatment. Combinations of decorative techniques do not occur on these pipes although two of the fired examples have punctate decoration covering their surfaces.

#### Polishing

Polishing of clay conical pipes was restricted largely to the Mogollon area where five pipes with this type of decoration were recovered from Bear Ruin. This site is located in the Forestdale branch and dates from A.D. 600-800. The one polished pipe from an Anasazi site dates to the Basketmaker III phase, and was found at Todosio Rock Shelter (Hester and Shiner 1963).

#### Incising and Painting

These techniques appear infrequently among clay and stone conical pipes; in fact, conical pipes in general remain undecorated. The two incised pipes were found in the southern regions of the Southwest, one from Los Muertos, a Hohokam site dating from A.D. 1300-1450, and the other from the Swarts Ruin (Cosgrove and Cosgrove 1932), a Mogollon site dating from the Pueblo II period.

A single painted clay conical pipe was found by Morris (1939) at a Pueblo I period site in the La Plata District. The design consisted of a black line encircling the middle of the pipe with one additional line branching off toward the bowl. The simplicity of this design style is not correlative with the local black-on-white ceramic styles which, during this time, are characterized by very fine lines, triangles and attached dots.

Although the use of a slip for decorating pottery was introduced during Pueblo I times there is no evidence indicating that conical pipes were decorated by this technique.

#### Other Decoration

All the clay pipes in this category are characterized by punctate decoration which usually encircled the pipe achieving a spiral or diagonal effect. These pipes were found in the Anasazi and Mogollon areas at sites clustering within the Basketmaker III-Pueblo II temporal range.

#### Evidence of Smoking

There is little evidence to indicate that clay pipes were smoked aboriginally although they may have been used solely as cloud-blowers rather than for actual smoking purposes. Two clay conical pipes were found which showed some bowl charring, and a large percentage of the stone conical pipes were smoked and have remains of the dottle in the bowl. One of the smoked pipes was found at a cave site located in the Fremont River drainage of Utah (Morss 1931), dating to

the Pueblo II period. The correlation between cave sites and smoked pipes which occurred regularly among the tubular type pipes may apply in this instance indicating the utilization of caves for ceremonial smoking before the introduction of the kiva. The other smoked clay pipe was found in the Sinagua area at a site dating to the early Pueblo III period.

### Provenience

Clay conical pipes have an early temporal origin and distribution and, expectedly occur mainly in cave sites and pithouses. A small number occur in unit type dwellings, especially in the Mogollon area, suggesting the late adoption of this pipe type by the people living in this area. Nowhere in the Southwest are these pipes found frequently after Pueblo II times.

Cave Sites: 21. The clay pipes found in cave sites all had differentiated bores divided into a distinct bowl and constricted stem, and none showed any evidence of exterior surface decoration. Their spatial distribution was restricted to the Anasazi area except for a single pipe from Fish Creek Cove in Utah. Within the Anasazi area the distribution was largely limited to northeastern Arizona and the Prayer Rock District where a number of clay conical pipes were found in Basketmaker Caves. Sites in this region cluster within the Basketmaker II and III time period, with a pipe from Woodchuck Cave dating as early as A.D. 200<sup>±</sup> 100 years. The majority of sites were

dated around A.D. 600 except for Fish Creek Cove in Utah which dates to the Pueblo II period.

Pithouse: 17. Some of the clay conical pipes in this category have straight tapering bores as well as punctate decoration, two characteristics which were absent in the previous group. When these characteristics appear the site distribution is extended to include the Sinagua and Mogollon areas, although the majority of sites were still located in the Anasazi region. The fourteen Anasazi examples came from sites dating between Basketmaker III and Pueblo II times, with most of these sites clustering roughly within the Four Corners area except for three examples from sites near Taos, New Mexico (Green 1963) dating within the Pueblo II time range. Two clay conical pipes were found at the Matson site (NA4375) (Breternitz 1957), a Sinagua site dating to the Pueblo I period. Both pipes were made of Rio de Flag brown paste and were in fragmentary condition when found. The Mogollon pipe was made of Alma Plain paste and was found at the SU site, a large pithouse village located in the Mimbres branch. Recent tree ring analysis of juniper samples from this site has placed SU temporally at the end of the Basketmaker II period around A.D. 450-500 (William J. Robinson, personal communication).

Pueblo: 9. Six of these pipes were found at the Swarts Ruin, a Pueblo II site located in the Mimbres branch of the Mogollon. One of the pipes exhibited fingernail punctations and was found in the fill whereas the five remaining examples were found below the floor of rooms at the site.

In the Sinagua area, near Flagstaff, one clay conical pipe was made of Alameda Brown paste and was found at the Piper site (NA4266) (Bliss and Ezell 1956), which dates between A.D. 1070-1120, roughly within the Pueblo II period. A pipe from a Valdez phase occupation site near Taos in the Anasazi area also dates from this time range, although the other Anasazi pipe was found in a masonry room built in a rock shelter (LA4294) and dates to the Gobernador phase 1696-1775 (Hester and Shiner 1963).

Kiva: 1. Clay conical pipes are not usually found at sites dating later than Pueblo II times; however, the only pipe found in a kiva was reported from Te'ewi (Wendorf 1953b) a large Pueblo IV period site located in the Chama Valley of New Mexico.

Burial Association: 4. The four clay conical pipes that were found with burials came from sites located in the Anasazi area. These pipes showed no special treatment denoting a burial offering. Temporally, the sites ranged from the Basketmaker II period at Woodchuck Cave through early Pueblo I times. Three sites cluster within the Four Corners area and the fourth was located in the Navajo Reservoir District dating to the Basketmaker III phase of development.

#### Areal and Temporal Distribution

The pre-eminence of the Anasazi area as a center for the manufacture of clay pipes occurred as early as Basketmaker II times (Table 10). It has been suggested that the Anasazi received the techniques of pottery-making from the Mogollon during early Basketmaker III times (Kidder 1962). However, evidence of the manufacture of clay

Table 10. Conical Pipes: Clay

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
W:10:56	refuse	PIII	ASM files	Arizona State Museum No. A-8074
Piper Cameron Creek Village	Pueblo room	1070-1120	Bliss and Ezell 1956 Bradfield 1931	pipe #338
Matson	pithouse	700-900	Breternitz 1957	
Matson	pithouse	700-900	Breternitz 1957	
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	found below floor
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	found below floor
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	found below floor
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	found below floor
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	found below floor
Swarts Ruin	general fill	PII	Cosgrove and Cosgrove 1932	punctation
Swarts Ruin	Pueblo room	PII	Cosgrove and Cosgrove 1932	incision
near Taos, New Mexico	pithouse	900-1200	Green 1963	
near Taos, New Mexico	pithouse	900-1200	Green 1963	
near Taos, New Mexico	pithouse	900-1200	Green 1963	punctation

Table 10. Conical Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Surface House	Pueblo room	900-1200	Green 1963	
Bear Ruin		641-713+	Haury 1940	polished
Bear Ruin		641-713+	Haury 1940	polished
Bear Ruin		641-713+	Haury 1940	polished
Bear Ruin		641-713+	Haury 1940	polished
Bear Ruin		641-713+	Haury 1940	polished
Los Muertos		1300-1450	Haury 1945b	incised
LA 4294	Pueblo room	1696-1775	Hester and Shiner 1963	Gobernador phase
Todosio Rock Shelter		400-700	Hester and Shiner 1963	burial association
Cave 1		BMII (?)	Kidder and Guernsey 1919	
Sayodneechee		BMII (?)	Kidder and Guernsey 1919	
Nalakihi		1187	King 1949	Elden Focus
Los Tules		PII	Lehmer 1948	
Los Tules		PII	Lehmer 1948	
Woodchuck Cave	cist	BMII	Lockett and Hargrave 1953	unfired
SU	pithouse	500	Martin and Rinaldo 1947	
Ridge Ruin		1100	McGregor 1941	Angell Focus
La Plata District		BMIII	Morris 1939	punctation
La Plata District		BMIII	Morris 1939	
La Plata District		BMIII	Morris 1939	
La Plata District		BMIII	Morris 1939	
La Plata District		BMIII	Morris 1939	
La Plata District		BMIII	Morris 1939	

Table 10. Conical Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
La Plata District		BMIII	Morris 1939	
La Plata District		PI	Morris 1939	Painted
La Plata District		PI	Morris 1939	punctation
Broken Flute Cave	pithouse	622-625	Morris 1959	
Broken Flute Cave		637	Morris 1959	
Broken Flute Cave	pithouse	622-625	Morris 1959	
Broken Flute Cave	pithouse	622-625	Morris 1959	
Broken Flute Cave	pithouse	622-625	Morris 1959	
Cave 2	pithouse	665-669	Morris 1959	
Cave 2	Pithouse 2	667-669	Morris 1959	
Cave 2	Pithouse 4	653-659	Morris 1959	
Cave 2	pithouse	665-669	Morris 1959	
Cave 8		670±	Morris 1959	
Cave 8		670±	Morris 1959	
Obelisk Cave		470-489	Morris 1959	
Obelisk Cave		470-489	Morris 1959	
Obelisk Cave		470-489	Morris 1959	
Pocket Cave		BMIII	Morris 1959	
Pocket Cave		BMIII	Morris 1959	
Pocket Cave		BMIII	Morris 1959	
Pocket Cave	pithouse	BMIII	Morris 1959	
Fish Creek Cove		BMIII	Morris 1931	
Mesa Verde	pithouse	750-800	O'Bryan 1950	
Piedra District	pithouse		Roberts 1923	

Table 10. Conical Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Shabik'eshchee	pithouse	BMIII	Roberts 1929	
Shabik'eshchee	pithouse	BMIII	Roberts 1929	
Piedra District		BMIII-PI	Roberts 1930	burial association
Piedra District		BMIII-PI	Roberts 1930	burial association
Te'ewi	kiva	1250-1500	Wendorf 1953b	

pipes as early as Basketmaker II times (Morris 1959; Lockett and Hargrave 1953) in the northern Anasazi area may indicate earlier diffusion from the Mogollon than previously thought, or possibly the autochthonous development of this craft among the Basketmakers. The similarity of Anasazi and Mogollon pottery during the Basketmaker period supports the thesis that pottery making techniques did diffuse into the Anasazi area from the Mogollon; although the unfired clay pipe from Woodchuck Cave (Lockett and Hargrave 1953) dating around A.D. 200<sup>±</sup> 100 years, predates the arrival of pottery from the Mogollon. This evidence not only suggests that the Anasazi were experimenting with clay during Basketmaker II times, but also that the conical pipe was the earliest clay type produced in the Southwest.

The greatest proliferation of clay conical pipes occurred during Basketmaker III times when regions beyond the northern Anasazi area were receiving direct stimulus from the core area. At this time clay conical pipes appear at Shabik'eshchee Village (Roberts 1929) near Chaco Canyon, and the Bear Ruin (Haury 1940) in the Forestdale branch of the Mogollon. People in the northern periphery were also receiving influences from the Anasazi and clay conical pipes appear there at the beginning of the pueblo periods. Although Anasazi stimulus was reaching out into surrounding areas, the greatest clay conical pipe manufacturing center remained in the northern Anasazi region where 26 specimens were recovered from cave and open sites.

With the onset of the pueblo period and the construction of above ground masonry structures, there was a decline in the number

of clay conical pipes found. The northern Anasazi regions still retained their importance and all six of the pipes recovered during Pueblo I times were from sites in southwestern Colorado. By this time clay conical pipes were also found at the Matson site (Breternitz 1957) in the Sinagua area, and in Utah, but none were recovered from Mogollon sites.

During the following Pueblo II period the only clay conical pipes that were found in the Anasazi area came from a Valdez phase pithouse village near Taos, New Mexico. The location of this village and the persistence of the subterranean type dwelling may account for the continued use of this pipe type. In general, however, the new cultural developments coincident with the pueblo period, along with the introduction of the kiva and associated religious innovation, probably contributed to the decline of this pipe type.

By Pueblo IV times two clay conical pipes were found in the Anasazi area, one at Te'ewi and the other from a Gobernador phase site in the Navajo Reservoir District. These two examples are very unusual as few clay conical pipes are found in any part of the Southwest after Pueblo II times.

In the Mogollon area one clay conical pipe occurred at the SU site dating to late Basketmaker II times. The early temporal designation of this site, and the infrequency with which clay pipes appear throughout the Mogollon sequence, leads me to believe that this one example may be an idiosyncratic artifact produced as an experiment. Heretofore, there has been no evidence to suggest that the Mogollon

were the initiators of clay pipe production, but instead they probably imitated Anasazi prototypes. Although the Mogollon were the first to use clay for pottery-making they did not regularly utilize this material for pipe-making until Anasazi influence reached the area.

By Basketmaker III times clay conical pipes were made in the northern branches of the Mogollon area, as five examples were found at Bear Ruin. In the following periods this idea diffused to the southern branches as clay conical pipes appeared at the Swarts Ruin in the Mimbres branch, and at the site of Los Tules. (Lehmer 1948) in the Jornada branch by Pueblo II times. The only example found after the Pueblo II period was from Arizona W:10:56, a site located in the Black River branch dating to the Pueblo III period.

In the Sinagua area the five clay conical pipes found all came from sites dating to the pueblo period. The earliest dates to Pueblo I times (Matson site) and the latest to a Pueblo III level of occupation (Nalakihu). The Utah specimen from Fish Creek Cove also dated from the pueblo period.

The one clay conical pipe from the Hohokam site of Los Muertos was probably intrusive and dates from A.D. 1300-1450.

### Stone Conical Pipes

#### Interior Form

Although the sample of stone conical pipes is considerably smaller than the clay sample, stone pipes exhibit a greater variety of interior forms. Stone conical pipes were predominantly straight bored, but five examples had a differentiated bore divided into a

distinctly widened bowl and smoke passage (Fig. 2 a). These five pipes had a spatial distribution that included the three main cultural areas of the Southwest, with the majority coming from sites in the Mogollon area (Crooked Ridge Village, Turkey Foot Ridge, and Mogollon Village). This interior form dates between Basketmaker II and Pueblo I in both the Mogollon and Anasazi areas. In the Hohokam area, however, the sole example came from the Lower Gila River drainage. This pipe was found with a clay plug (Fig. 2 c) in place at a site that has only been roughly dated as pre-A.D. 1150. This pipe was made of talc which was easily drilled to form a widened bowl end. Plugs are usually found in association with a straight tapering interior form, but this particular pipe was drilled from each end and the stem was very short, probably accounting for the plug which was necessary for a comfortable smoke.

Other pipes drilled from each end and having straight tapering bores, come from sites in the Mogollon and Sinagua areas. The Sinagua example was found at site NA2000 (Bartlett 1934) which dates from the Pueblo II period. The others were found at San Simon Village (Sayles 1945) and the Carter Ranch site (Martin and others 1964) in the Mogollon area. One other Mogollon pipe was found at the Point of Pines Ruin (Morris 1957), a site dating as late as the Pueblo IV period.

Another group of stone conical pipes exhibit straight tapering bores drilled from only one end of the pipe. These examples were found mainly at Anasazi and Mogollon sites. The one pipe from the

Mogollon area was found at Crooked Ridge Village, and demonstrates a sophisticated manufacturing technique as early as the Basketmaker period. Of the Anasazi examples three also date to this time period and were all found in caves in the Prayer Rock District (Morris 1959); one from Obelisk Cave dated A.D. 479, one from Broken Flute Cave A.D. 637, and the third from Cave #8 dating around A.D. 650. The fourth Anasazi example was found at a Pueblo II-III period site, Jeddito 108 (Woodbury 1954), located in the Hopi area.

Stone conical pipes show greater variation in interior construction and in spatial distribution than the clay form. However, neither group exhibits an additional mouthpiece nor beveling. It should not be assumed that additional bits were never used when smoking conical pipes because if the bit itself is not found in place it is very difficult to infer whether such a device was used or not.

#### Surface Treatment

Polishing and incising were the only decorative techniques employed in embellishing stone conical pipes. These attributes were found singly and did not appear together on any of the five decorated pipes in the sample.

#### Polishing

The polished pipes were all found at Anasazi sites located in northeastern Arizona. A polished pipe from Woodchuck Cave was found with a burial dating to the early Basketmaker II period; and polished examples from the sites of Kinboko and Sayodneechee were not

specifically dated by the authors (Kidder and Guernsey 1919).

### Incising

Incised decoration was not characteristic of the stone conical pipes from the Anasazi area, and the two incised examples were from sites in the Mogollon and Hohokam areas. The Mogollon pipe was found at the Carter Ranch site which dates from A.D. 950-1150, equivalent to the Pueblo II period. In the Hohokam area, Vivian (1965) found an incised pipe at a site (Arizona S:16:22) located in the Lower Gila River area. This pipe was made of talc and had elaborate incised designs covering the surface as well as rim notches that were incorporated into the overall geometric motif. The site has not been precisely dated, but the author states that the Hohokam probably did not occupy the region after A.D. 1150 (Vivian 1965: 144).

### Evidence of Smoking

Stone conical pipes were definitely smoked by Basketmaker II times in the Anasazi and Mogollon areas. Positive evidence from seven examples shows heavy bowl incrustation from prolonged usage as well as remains of the pipe dottle. The six Anasazi pipes were all found in dry caves in northeastern Arizona that contained large amounts of Basketmaker material culture. Obelisk Cave was occupied by Basketmaker II times (Morris 1959) and others such as Broken Flute Cave and several excavated by Kidder and Guernsey (1919) were mainly associated with the ensuing Basketmaker III period. At the onset of the pueblo period, people withdrew from caves and began moving into above ground

masonry structures with the concomitant reduction of the number of smoked pipes found in cave sites.

The one smoked pipe from the Mogollon area was found in a pithouse at Crooked Ridge Village. This structure was constructed during the Early Circle Prairie phase and dates between A.D. 100-400 (Wheat 1954).

### Provenience

Provenience data supports the claim that the Anasazi were the originators of stone conical pipes because the majority of pipes were found in Basketmaker caves in this area. The only Mogollon examples dating to this period were found at Crooked Ridge Village and Bat Cave, and these pipes were probably made as a result of ideas filtering into the area from the north.

Cave Sites: 7. The cave sites under consideration were all located in northeastern Arizona where large caches of Basketmaker cultural material have been recovered. Conical pipes were included in this cultural assemblage, and at Woodchuck Cave a pipe was found in association with a burial. This site dates to the early Basketmaker II period, but stone conical pipes continue being found in caves through Basketmaker III occupation levels.

Pithouse: 4. Stone conical pipes found in pithouses were restricted to the Mogollon and Sinagua areas. Two examples from Crooked Ridge Village were associated with Pithouse #6 dating to the Early Circle phase (A.D. 100-400). At the Turkey Foot Ridge site, Martin and Rinaldo (1950) found a conical pipe in a pithouse which

was constructed during the San Francisco phase (Pueblo I period) and occupied during this phase and the following Three Circle phase. The Sinagua example also dates to this time range.

Burial Association: 3. In the Anasazi area two conical pipes were found as grave accompaniments. The pipe from Woodchuck Cave was found in Cist #2 with an adult male who had been buried with a skin bag and other items, including the pipe. The cave was occupied as early as A.D. 200 and this individual was only one of a number of burials which have been recovered from cists dug into the floor of the cave. Another pipe found with a burial was reported by Roberts (1930) from a site in southwestern Colorado. This pipe was made of limestone and came from a transitional Basketmaker III-Pueblo I site.

R. Gwinn Vivian (1965) reported finding a talc pipe when surveying the Lower Gila River drainage in the Hohokam area. This pipe was found at Arizona S:16:22 in association with a cremation. Ceramic evidence from the site indicates a Hohokam occupation prior to A.D. 1150.

#### Areal and Temporal Distribution

Stone and clay conical pipes have a similar distributional range although clay pipes occurred in greater numbers (Table 11). The occurrence of stone pipes in the northern portions of the Anasazi area by Basketmaker II times is paralleled by the clay variety, though stone conical pipes are restricted to this region except for one example found near the Hopi Mesas. During Basketmaker II and III periods stone conical pipes are found in caves in northeastern

Table 11. Conical Pipes: Stone

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
NA 2000	pithouse	PII	Bartlett 1934	
Mogollon Village		900	Haury 1936a	
Canyon Butte			Hough 1903	
Kinboko			Kidder and Guernsey 1919	
Sayodneechee			Kidder and Guernsey 1919	
Sayodneechee			Kidder and Guernsey 1919	polished
Woodchuck Cave		BMII	Lockett and Hargrave 1953	polished; burial
Turkey Foot Ridge	pithouse	PI	Martin and Rinaldo 1950	
Carter Ranch		950-1150	Martin and others 1964	
Point of Pines		1250-1450	Morris 1957	
Broken Flute Cave		637	Morris 1959	smoked
Cave 8		650	Morris 1959	smoked
Obelisk Cave		479	Morris 1959	smoked
Piedra District		EMIII-PI	Roberts 1930	burial association
San Simon Village		950-1150	Sayles 1945	Encinas phase
S:16:22		1150	Vivian 1965	cremation; incision
Crooked Ridge Village	Pithouse 6	100-400	Wheat 1954	Early Circle Prairie
Crooked Ridge Village	Pithouse 6	100-400	Wheat 1954	Early Circle Prairie
108	surface	PII-III	Woodbury 1954	

Arizona, and by Pueblo times one example was found by Roberts (1930) at a transitional Basketmaker III-Pueblo I site in the Piedra district. The only other pipe from the Anasazi area was recovered from Jeddito 108, a Pueblo II-III period Hopi site.

In the Mogollon area, the seven examples show a longer temporal span than the Anasazi pipes. Stone conical pipes occurred as early as Basketmaker II times at Crooked Ridge Village, and were found in San Francisco phase pithouses at the Turkey Foot Ridge site and Mogollon Village. By the Pueblo II period this type of pipe had diffused south into the San Simon branch, and another example was found at the Carter Ranch site which, according to radiocarbon dates, has been assigned to this period. During Pueblo times the Mogollon were becoming increasingly Anasaziized which probably explains the appearance of these pipes even though the popularity of conical pipes had waned in the northern areas by this time. Stone conical pipes persisted through the pueblo periods among the Mogollon with one example being found at the Pueblo IV site of Point of Pines (Morris 1957).

In addition, stone conical pipes occurred in the Sinagua and Hohokam regions. In both areas a single pipe was recovered from a Pueblo II period site.

#### Wood Conical Pipes

These three pipes were found in caves in Utah and the Mogollon area where optimum conditions favored the preservation of wooden artifacts. Each pipe was found with a bit in place although there is no description of the interior form of the pipes. The Utah examples

(Montgomery 1894) had bird bone bits which were attached to the stem of the pipes with a black cement-like substance that also lined the bowls, probably to prevent the wood from burning. Neither of these pipes showed definite evidence of having been smoked. The wooden pipe from Bat Cave (Dick 1965) had been smoked as there was a thick layer of charred material in the bowl. This example had a reed bit, and was found at the base of the pottery zone in the cave. The uncertainty of the dating sequence for this site prevents the assignment of any specific dates, although this particular wooden pipe probably has Basketmaker affiliations. There are no dates for the two Utah specimens (Table 12).

Table 12. Conical Pipes: Wood

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Bat Cave		late EMII	Dick 1965	reed stem
near Moab, Utah			Montgomery 1894	bone stem
near Moab, Utah			Montgomery 1894	bone stem

## CHAPTER 7

### SHOULDERED CONICAL PIPES

#### Clay

The exterior form of shouldered conical pipes is reminiscent of the clay conical type although a prominent shoulder initiates the widening of the bowl in this type. Shouldered conical pipes have globular or bulbous shaped bowls that taper sharply at the shoulder to form the narrow cylindrical stem (Fig. 3 a). It is difficult to describe this type as the shouldered effect is more pronounced on some pipes than others. In some examples the effect is less shouldered and more of a swelling which expands into a globular shaped bowl. The lips of the bowls tend to be incurving rather than flaring outward as is characteristic of the conical type. All the pipes in this type were made of clay.

#### Interior Form

Shouldered conical pipes have an interior form consisting of a distinctly rounded bowl and constricted stem (Fig. 2 a). The exterior shoulder represents the interior juncture between the bowl and stem which in this type means an obvious constriction to a narrow smoke passage.

Construction of these pipes would entail molding the clay around a shaped object or with the hands to produce a bulbous bowl,

and the cylindrical stem was molded around a twig, the usual technique employed for all clay types. The exterior surfaces of these pipes look well smoothed and the transition from the bulbous bowl to the slender stem is smooth and fluid in most instances.

The eight pipes that could be coded for interior form had differentiated bores, and they were distributed spatially among the Mogollon, Anasazi and Sinagua areas with the majority coming from Mogollon sites.

None of the shouldered conical pipes were smoked with a bit as the slender stem provided an adequate mouthpiece in itself. The differentiated bore kept tobacco out of the smoker's mouth and plugs were not found in association with these pipes nor were they expectable.

#### Surface Treatment

Shouldered conical pipes, like the conical type, lack extensive surface decoration. Polishing and punctate decoration represent the only decorative attributes found, as the majority of the pipes were made of undecorated clay. Those that exhibit surface ornamentation were found in several cultural subareas, at sites varying in time. The only polished pipe was found in the Mogollon area at the SU site. A number of shouldered conical pipes were found at this site, and one example made of Alma Plain paste had a row of punctations in a zigzag design encircling the bowl (Fig. 3 a). The only other pipe evincing surface decoration was found by Morris (1939) at a Pueblo I site in the La Plata District. This pipe had eyelets on

either side of the bowl, one inch below the rim, that were probably used for carrying the pipe on a cord.

#### Evidence of Smoking

As expected, only two pipes show any evidence of having been smoked, since few clay pipes evince any bowl charring to indicate previous smoking. These two pipes were found at sites in the Anasazi area dating to the pueblo periods, the Candelaria site to the Pueblo I period and Pueblo Bonito to the Pueblo III period.

#### Provenience

All shouldered conical pipes were found in pithouses except for one pipe found in a unit type dwelling at Pueblo Bonito. Most of the examples came from sites in the Mogollon area with the SU site and Crooked Ridge Village providing the greatest number of pipes. These sites both date to the Basketmaker period, and the few examples found in other areas came from sites dating later in time.

#### Areal and Temporal Distribution

The Mogollon area stands out as the principal center of shouldered conical pipe production, and by Basketmaker II times these pipes appeared at the SU site and Crooked Ridge Village. In the following Basketmaker III period pipes were found at a Chaco Canyon pithouse (Judd 1924) and at a Sinagua site NA6589 (Breternitz 1959). The occurrence of these pipes in other areas of the Southwest during Basketmaker III times or later supports Rinaldo's statement that "the Mogollon made a single piece clay pipe with a pronounced shoulder

between the stem and the bowl" (1941: 13). Furthermore, he suggested that this type was limited to the Mogollon area, but evidence from my sample shows that these pipes have a wider spatial distribution than previously thought (Table 13). Of more importance, however, is the considerable variation in shouldered effect and overall shape of the pipes in this group. Because of this problem it is difficult to determine whether the Mogollon were the only people who consciously made a shouldered type of pipe or whether the few pipes found outside the Mogollon area were merely examples of unconventional behavior on the part of the maker.

Table 13. Shouldered Conical Pipes: Clay

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
NA 6589	surface	BMIII	Breternitz 1959	
Candelaria		800-900	Dittert and Eddy 1963	
Paragonah			Judd 1919	
Chaco Canyon	pithouse	BMIII	Judd 1924	
Spur Ranch			Hough 1914	
Harris Village		900-1100	Haury 1936a	Three Circle or Mimbres phase
#1	pithouse	PI	Martin 1939	
SU	pithouse	500	Martin 1943	
SU	pithouse	500	Martin and Rinaldo 1940	punctation
SU	pithouse	500	Martin and Rinaldo 1940	
SU	pithouse	500	Martin and Rinaldo 1940	
SU	pithouse	500	Martin and Rinaldo 1947	
La Plata District		PI	Morris 1939	eyelets on bowl rim
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	
Crooked Ridge Village	Pithouse 5	400-600	Wheat 1954	Late Circle Prairie

## CHAPTER 8

### ELBOW PIPES

The pipe types previously discussed are alike in that they all are essentially tubular in form, having their bowl and stem in horizontal alignment. Differences between these types fall mainly into categories of interior and exterior characteristics, although the other defined categories serve to further separate the pipe types. Elbow pipes are the first type to be considered which diverge significantly from the all-encompassing "tubular" form. The stem portion of elbow pipes is tubular in shape, but the upright bowl is set vertically at a right angle to the stem, resembling the form of the modern pipe (Fig. 4 a, c). Because of this distinctive form, elbow pipes are easily recognized and are considered rare items in Southwestern collections. These pipes were usually made of clay although stone examples have occasionally been found at Southwestern sites. The functional attributes of these pipes permitted them to be smoked without an additional mouthpiece, although both Kidder (1932) and Judd (1954) reported finding elbow pipes with extra stems. Furthermore, ethnographic evidence presented by Dorsey and Voth (1902, Pl. 113) shows elbow pipe bowls with short stems and additional bits. Even with these convincing facts, elbow pipes found in archaeological context show no evidence from which to infer the use of a bit, and the slender tubular stem would in itself be an adequate mouthpiece. If

bits were customarily used, it is probable that they would be found in association with stone elbow pipes and not the clay type (cf. Kidder 1932, Fig. 61). The increased difficulty of carving a one piece elbow pipe from stone would be alleviated somewhat if the maker carved only the pipe bowl using a wooden or reed bit for the tubular stem.

The self evident interior form of the elbow pipe and the fundamental differences in form between this type and the straight tubular types prompted my decision to deviate from the previous format, omitting a detailed description of interior form and exterior characteristics which have been covered in the above general discussion.

### Clay Elbow Pipes

#### Surface Treatment

Clay elbow pipes were characteristically decorated, especially painted, whereas very few of the stone variety evince any surface ornamentation. Combinations of decorative attributes occurred regularly, either polishing, painting or slipping with additional painted decoration. Attention was directed toward the painting of elbow pipes and elements of the design style correspond to the predominant features of the black-on-white pottery types of the Anasazi (Fig. 4 a). By the Pueblo III period, regional variation in terms of pottery types was well established and experimentation with new techniques was taking place in many areas. This spirit of experimentation carried over into pipe production and the associated decorative treatment of these items.

### Polishing

This decorative technique was frequently used to smooth the surface of tubular pipes during the early periods of cultural development in the Southwest. However, elbow pipes were often decorated by more sophisticated techniques with polishing occurring as an adjunct to painted and/or slipped surface decoration. Only one of the three polished pipes exhibited a plain polished surface as the other two examples were slipped and painted. These pipes were found at sites in the Anasazi area dating to the Pueblo II and III periods.

### Painting

The painted decoration which occurred on tubular pipes was usually linear in form and covered a restricted portion of the pipe surface. Elbow pipe decoration covered a greater area of the pipe surface, including the interior of the bowl in one instance. Many of the painted pipes were first slipped white before the application of black paint. This black-on-white effect coincides with the specialized black-on-white pottery characteristic of the Anasazi during the pueblo periods. At this time the Anasazi show increasing sophistication in their design styles which extends to the painting of elbow pipes. Besides the traditional linear patterns, new elements such as triangles and dots, cross-hatching and chevrons, appear as integrated units in the design styles of clay elbow pipes. These pipes were all found at sites in the Anasazi area, with one group of four specimens coming from sites clustering in southwestern Colorado that date to the Pueblo II period. The other six pipes were from sites

in the vicinity of Chaco Canyon dating principally to the late Pueblo II and Pueblo III period; although, the pipe found at LA2508 (Cassiday 1956), dates to the Pueblo I period. This elbow pipe is one of the earliest examples of this type found, as these pipes do not occur in the Southwest prior to Pueblo I times.

### Slipping

All but one of these pipes was painted in addition to being slipped. The one example which was not decoratively painted had been slipped black and then highly polished while other pipes in this category were covered with a white slip before the application of black painted designs. These pipes came from sites located in two distinct regions of the Anasazi area, three from southwestern Colorado dating to the Pueblo II period, and four from Chaco Canyon dating to the following Pueblo III period.

### Evidence of Smoking

Clay tubular pipes from Southwestern sites were rarely smoked by burning tobacco or any other plant material. There is practically no evidence in the form of dottles, or interior bowl charring to indicate traditional smoking practices. The reason for this phenomenon has not as yet been explained although I have proposed that clay pipes were used mainly as cloudblowers and the stone forms for tobacco smoking. This, however, may not be the case with clay elbow pipes as seven examples were definitely smoked. These pipes exhibit no exterior decoration even though surface ornamentation, especially

painting, is characteristic of clay elbow pipes. Furthermore, it is notable that none of these pipes were found in kivas, yet a significant number of painted, unsmoked pipes were found in these structures. From this evidence a direct correlation may be inferred between the appearance of paint and ceremonial activity, with the subsequent use of these pipes for kiva ritual involving cloudblowing, and not tobacco smoking. A similar inference was drawn in the stone tubular pipe type where there was a significant number of painted pipes, with bevels near the bowl end, which had not been smoked. Several of these pipes were recovered from kivas, though unfortunately there was no provenience information for the others. The areal and temporal distribution of these two separate groups is interesting as well. Temporally, each group dates to the Pueblo periods, with no occurrences earlier than Pueblo I times. The clay elbow pipes are restricted to the Anasazi area where clay was the favored material for pipe manufacture; in contrast, the stone group is limited to the Mogollon area, particularly the Mimbres and Cibola branches where stone continued to be the preferred material even after Anasazi cultural domination. Thus, in both areas there appear to be specific kinds of pipes that were restricted to ritual activity.

#### Provenience

Elbow pipes entered the Southwest during Pueblo I times when contact opened up with the Mississippi tradition to the east. At this time people in the Southwest were experimenting with new types of house structures and the trend was toward above ground single-story

masonry pueblos. The kivas were first introduced at this time, becoming an integral part of the architectural complex. These important events have determined where the majority of elbow pipes occur within the archaeological site complex. Most were found in residence units or in kivas, although two pipes came from pithouses in southwestern Colorado where the transition from subsurface dwellings to above ground masonry pueblos was in progress.

Pueblo: 23. Clay elbow pipes appeared almost exclusively at sites in the Anasazi region, except for one example found in central Utah. The Anasazi sites cluster within specific regions, often with differing temporal designation. Three pipes were found at sites in southwestern Colorado dating to the Pueblo I and II periods. This same time period is applicable to the Chaco sites except for Pueblo Bonito which had its efflorescence during the following Pueblo III period. The majority of sites where clay elbow pipes were found in house structures, were located in or near the Rio Grande Valley. During Pueblo IV times people living in the outlying regions of the Anasazi area withdrew, many of them moving into the middle Rio Grande area where large pueblo sites were constructed. It is from many of these sites, including Pecos, Paa-ko and Te'ewi, where the elbow pipes in this group were found.

Other pipes were found in residence units at Cerrito, a Gallina phase site dating to the Pueblo III period, and from Marysville (Gillin 1941) a site in Utah that has not been accurately dated.

Kiva: 7. Sites where pipes have been found in kivas have a different distribution than the preceding group. The majority of these sites cluster within the Chaco Canyon area with one pipe coming from LA2508 (Cassiday 1956) dating to Pueblo I times, and the others from Pueblo Bonito (Judd 1954) dating to the Pueblo III period. In southwestern Colorado one pipe was found in a kiva at the Lowry Ruin (Martin 1936) which dates, according to tree ring analysis, to the late Pueblo II and Pueblo III period.

During Pueblo I times, the Anasazi tradition was extending into adjacent regions including the northern periphery where many elements of Anasazi culture were incorporated into the already existing system. In Utah, two elbow pipes were found in a kiva at Marysvale, a Pueblo period site not accurately dated.

A number of authors did not provide enough provenience data for classification.

#### Areal and Temporal Distribution

A survey of elbow pipe distribution conducted by Tichy (1945), suggests that although elbow pipes were rare items at puebloan sites, their considerable antiquity does not rule out the possibility of independent development in the Southwest, but she is alone in holding this opinion. Others such as Jennings (1956) and Wendorf (1953b) feel that the distinctive elbow pipe diffused into the Southwest during Pueblo I times from an eastern source. I agree with this latter evaluation as evidence from my sample indicates a Pueblo I introduction with no proof of elbow pipes occurring prior to this time. In

addition, many of the Pueblo I examples were well constructed with no evidence of earlier, possibly cruder prototypes. The Southwest was not an isolated area unaffected by outside influence, and during the span of Southwestern development there was considerable contact with areas to the west and east, with influences moving in both directions.

Although Tichy points to the middle Rio Grande area as the area where the greatest number of elbow pipes have been recovered, this is not the area where the earliest pipes have been found. She regards a pipe from a Chaco Canyon pithouse as the earliest example of an elbow pipe, but I disagree with her typing of this pipe as an elbow form; and, in two other instances I have found similar discrepancies in her typological classification. The pipe found by Toulouse (1937) at Jemez Springs is not a true elbow pipe, but a more typical Plains or Eastern platform type. Moreover, the pipe found by Haury (1936a) at Mogollon Village is a clay tubular pipe with a marked shoulder separating the bowl from the stem, but there is no bowl angularity indicating an elbow type pipe. As yet, I know of no elbow pipes having been reported from the Mogollon area, and the majority of pipes were from Anasazi sites with a few examples occurring at sites in the northern periphery of the Southwest (Table 14).

In the Anasazi area, 35 examples were found at sites clustering in three distinct regions. The earliest appearance of elbow pipes occurred in southwestern Colorado where nine pipes were found at sites dating from the Pueblo I and Pueblo II periods. One example from the Aztec Ruin (Morris 1919) in northwestern New Mexico is

Table 14. Elbow Pipes: Clay

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
LA 2508	kiva	PI	Cassidy 1956	painted
LA 2508	Pueblo room	PI	Cassidy 1956	
Leyit Kin	Pueblo room 7	PII	Dutton 1938	painted
Pueblo Bonito	kiva	PIII	Judd 1954	painted
Pueblo Bonito	Pueblo Room	PIII	Judd 1954	footed
Pueblo Bonito	Pueblo Room 320	PIII	Judd 1954	footed, painted
Pueblo Bonito	general fill	PIII	Judd 1954	
Pueblo Bonito	kiva	PIII	Judd 1954	
Pueblo Bonito	kiva	PIII	Judd 1954	painted
Marysvale	Pueblo room		Gillin 1941	
Marysvale	kiva		Gillin 1941	
Marysvale	kiva		Gillin 1941	
Surface House	Pueblo room	PII	Green 1963	
Cerrito	Pueblo room		Hibben 1938	footed
Chimney Rock Mesa	pithouse		Jeancon 1922	
Pagosa-Piedra area	pithouse		Jeancon 1924	burial association
Pecos		1350+	Kidder 1932	
Pecos		1350+	Kidder 1932	
Pecos		1350+	Kidder 1932	
Pecos		1350+	Kidder 1932	
Pecos		1350+	Kidder 1932	
Pecos		1350+	Kidder 1932	
Pecos		1350+	Kidder 1932	
Pecos		1350+	Kidder 1932	
Paa-ko	Pueblo room	PIV	Lambert 1954	

Table 14. Elbow Pipes: Clay--Continued

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Paa-ko	Pueblo room	PIV	Lambert 1954	
Paa-ko	Pueblo room	PIV	Lambert 1954	
Lowry Ruin	Pueblo room	late PII	Martin 1936	painted
Lowry Ruin	Pueblo room	late PII	Martin 1936	painted
Lowry Ruin	kiva	late PII	Martin 1936	painted
Largo area		1100	Mera 1938	footed
Aztec Ruin		PIII	Morris 1919	polished
La Plata District	Pueblo Room 20	PI	Morris 1939	
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	slipped and polished
Montezuma Mesa			Roberts 1925	
near Arboles Colorado	surface		Roberts 1925	painted
Pueblo Pardo		PIV	Toulouse and Stephenson 1960	
Te'ewi	Pueblo Room 12a	PIV	Wendorf 1953b	

included in this group, and dates to the following Pueblo III period.

A specialized variety of the elbow pipe is restricted to the Gallina region of the Anasazi area. The Gallina phase as recognized by Hibben (1938), is a distinctive complex with Athabascan connections, which differs significantly from the surrounding puebloan manifestations. Elbow pipes from Gallina phase sites have foot-like projections or knobs on each side of the base of the bowl (Fig. 4 a). The projections were used to hold the pipe upright when in use and also to keep it from falling to one side when placed on a flat surface. Footed elbow pipes occurred at a few sites outside the Largo-Gallina area, namely Pueblo Bonito and Pecos, and all the sites where these pipes have been found date to the Pueblo III period or later. The majority of these pipes were made of clay although the specimen found at Pueblo Bonito (Pepper 1920) was made of aragonite.

In the Chaco area elbow pipes date primarily to the Pueblo III period as most of the examples came from Pueblo Bonito. These pipes were elaborately decorated and show sophisticated workmanship. Two other pipes from this general area were found at LA2508, a site located near Gallup, New Mexico dating to the Pueblo I period. On this time level the Anasazi cultural tradition was spreading west and south, and the appearance of elbow pipes in Utah and at LA2508 may be the result of this impetus.

In the Rio Grande area, where the greatest number of elbow pipes have been found, there was either a late introduction of these pipes or a delayed acceptance as they did not occur frequently until

Pueblo IV times. These pipes came from large pueblo sites, namely Paa-ko and Pecos, which were constructed during Pueblo IV times, and occupied after the arrival of the Spaniards. Other examples were recovered from Te'ewi (Wendorf 1953b) and Pueblo Pardo (Toulouse and Stephenson 1960) and, interestingly, none of the pipes from these Rio Grande sites were elaborately decorated. During this period from around A.D. 1200-1500, clear evidence of southwestern-plains contacts occurred, especially in the Chama and Pecos valleys, as evidenced by the elbow pipes from sites in these areas. Some of the elbow pipes from Pecos had imaginative and artistically sculpted exteriors which definitely resemble eastern prototypes. This 300 year period of more intense contact with plains groups may explain the late appearance of elbow pipes in the Rio Grande area. It is possible that they were re-introduced to the area during this period and were not a result of diffusion from the Chaco region. If this is, in fact, what happened, then we may postulate two separate introductions of the elbow pipe into the Southwest. They first occurred during Pueblo I times "when eastern cultural elements had already penetrated to the eastern slopes of the Rockies in the Colorado area" (Jennings 1956: 102). From this part of Colorado, the elbow pipe diffused to the southwestern part of the state where examples appeared by the Pueblo I period. After its initial acceptance this pipe type spread west to Utah, where Gillin (1941) reported examples from Marysvale, and south to Chaco Canyon sites. However, it is not until Pueblo IV times that elbow pipes reached the Rio Grande Valley even though this area was in close

proximity to eastern sources. Pipes from these late Pueblo IV sites were remarkably undecorated, except for the Pecos specimens, and they may be the result of a late reintroduction of this pipe type.

### Stone Elbow Pipes

Stone elbow pipes occur infrequently in the Southwest, but their distribution parallels the clay variety. These pipes exhibit less decorative effort and are often found with unfinished bores. Since stone elbow pipes were difficult to carve, and in some instances only the bowl portion of the pipe was found, it is possible that additional wooden or reed bits were often used when smoking these pipes.

### Surface Treatment

Although clay elbow pipes were elaborately painted and slipped, these decorative techniques were not applied to the stone form. Stone elbow pipes were occasionally polished and, except for some unusual instances of carved bands or other carvings in relief, there was no attempt to ornament the surfaces of these pipes.

### Polishing

The three polished pipes were all from sites in the Anasazi area, ranging in time from the Pueblo I period through the eighteenth century. Generally, this was the only decoration applied to the pipe, although the specimen from an eighteenth century Navajo fortress in the Gobernador District (Carlson 1965) had carvings in relief encircling the bowl and extending along the length of the stem. The other two pipes were from the Candelaria site (Dittert and Eddy 1963) in

southwestern Colorado and Pueblo Bonito (Pepper 1920) in Chaco Canyon.

#### Other Decoration

Two Chumash steatite pipes from Malibu, California (Hodge 1946) and an eighteenth century pipe from the Anasazi area comprise the other stone pipes evincing surface ornamentation. Both the Chumash pipes have raised bands near the proximal end and on one pipe the bands were incised with a series of parallel diagonal lines inlaid with shell beads. The Navajo pipe had a corn stalk carved in relief on opposite sides of the stem, and around the bowl was a similar carved design.

#### Evidence of Smoking

A result of the analysis of the tubular pipe types was the evidence indicating that clay pipes were not smoked by prehistoric Southwesterners. The consistent lack of bowl charring, dottles or other similar manifestations left me with the impression that clay pipes were used exclusively as cloudblowers or possibly that any evidence of carbonaceous material had been leached out through time.

Elbow pipes exhibit the reverse situation from the tubular types as more clay pipes show evidence of smoking while only one stone elbow pipe was definitely smoked. There were many more clay elbow pipes found at Southwestern sites, and several of the stone examples that were found had uncompleted bores. However, completed specimens were found in their pristine state without any evidence of bowl charring.

The only smoked stone elbow pipe resembled the Large-Gallina specimens, having footed protuberances on either side of the bowl for holding the pipe and for providing a base for support. This example was found by Pepper (1920), in a house structure at Pueblo Bonito.

None of the stone elbow pipes were found in association with any archaeological feature that would indicate ceremonial usage of these pipes.

#### Provenience

Stone elbow pipes occurred in association with the same architectural features as the clay pipes, although only one stone pipe was found in a kiva. It is likely that both clay and stone elbow pipes were used for the same purposes, as these pipes were intrusives and differed in form from the typical "tubular" Southwestern pipe.

Pithouse: 2. During Pueblo I when elbow pipes were first introduced into the Southwest, subsurface dwellings were still being utilized, although above ground masonry structures were in the incipient stage of development. At the Candelaria site both these architectural type structures were in use simultaneously and a stone elbow pipe was found on the floor of the pithouse. This is a single component site dating to the Pueblo I period. Another pipe found in a pithouse was reported from Site 104 (Lambert 1956) located in the northern Rio Grande Valley near Valdez, New Mexico. This pipe was in perfect condition except for an unfinished bore, and it dates from the eleventh century.

Pueblo: 6. All the stone elbow pipes found in residence units came from sites in the Anasazi area and, in particular, from the site of Pueblo Bonito. This large Pueblo III period site is located in Chaco Canyon where surface pueblos reached their greatest complexity. Artifacts also reached the peak of their elaboration at this time and pipes exhibit a great variety of decorative techniques as well as variation in form.

Kiva: 1. The only stone elbow pipe found in a kiva came from Marysvale, a pueblo site in central Utah.

#### Areal and Temporal Distribution

The distribution of stone elbow pipes corresponds to the clay form, with the majority of pipes coming from sites in the Anasazi area (Table 15). Within this area three main regions stand out as the major centers of elbow pipe manufacture and utilization. By Pueblo I both stone and clay elbow pipes appear at sites in the Four Corners area, and from this region they diffused west and south as evidenced by the stone pipe from Marysvale in Utah and, more importantly, the large number of examples that were found in the Chaco region. In this area Pueblo Bonito stands out as the most important center of elbow pipe production and distribution. Pipes from this site demonstrate the extent of communication within the puebloan interaction sphere during Pueblo III times. The Rio Grande Valley to the east, represents the third main center within the Anasazi area. In this region a number of clay elbow pipes were found predominantly at large Pueblo IV period sites. Stone elbow pipes, however, were restricted to

Table 15. Elbow Pipes: Stone

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Navajo Fortress	surface	1732	Carlson 1965	relief decoration
Candelaria	pithouse	PI	Dittert and Eddy 1963	
Marysvale	kiva		Gillin 1941	
Malibu			Hodge 1946	raised bands; shell inlay
Malibu			Hodge 1946	raised bands; incision
Pueblo Bonito	Pueblo room	PIII	Judd 1954	plug in bore
Pueblo Bonito	Pueblo room	PIII	Judd 1954	
Pecos	surface		Kidder 1932	bore unfinished
Pecos	Pueblo room	1500	Kidder 1932	bore unfinished
104	pithouse	PII	Lambert 1956	bore unfinished
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	footed
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	
Pueblo Bonito	Pueblo room	PIII	Pepper 1920	

sites in the middle and northern portions of the valley which did not necessarily date to this period. At Pecos, two unfinished stone pipes were found which probably date from the historic occupation of the site. The other examples came from a pithouse site in the vicinity of Taos, dating to the Pueblo II period. In addition to the already mentioned specimens from the historic period, there are two Chumash examples from California and an eighteenth century pipe from a Navajo fortress in the Gobernador District of the Anasazi area.

## CHAPTER 9

### EFFIGY PIPES

#### Clay

True effigy pipes carved from clay and stone, which are the hallmark of the Adena, Hopewell and Eastern Woodland cultural traditions do not appear in the Southwest. The few effigy pipes found at Southwestern sites in no way approximate the inventiveness of the eastern examples. Even though sophisticated effigy pipes occur by 1000 B.C. at Adena sites, there is no evidence of this pipe type in the Southwest until at least A.D. 1000. The few isolated examples come, for the most part, from large Pueblo IV or V sites located in the Rio Grande Valley (Fig. 4 d). In this area, effigy pipes were found at Paa-ko, Alameda Ruins (Pooler 1940) and Pecos, where many of the pipes were unconventional by Southwest standards, resembling eastern prototypes. In addition to this area, one of the effigy pipes was found at Paragonah, Utah and another at a site in the Piedra District of southwestern Colorado. These pipes were all made of clay and were modeled in the shape of various animal forms, including birds, a frog and a squirrel (Table 16). The pipe from the Alameda Ruin resembles a human figure, a motif commonly utilized by Eastern Woodland groups (Willey 1966: 271).

Besides the effigy and elbow pipes which are not indigenous to the Southwest, the occasional occurrence of a platform type pipe

Table 16. Effigy Pipes: Clay

<u>Site</u>	<u>Provenience</u>	<u>Date</u>	<u>Reference</u>	<u>Remarks</u>
Paragonah		PI (?)	Judd 1919	squirrel
Pecos		1350+	Kidder 1932	bird; incised
Paa-ko	Pueblo room	PIV	Lambert 1954	bird; incised
Alameda Ruins		PIV	Pooler 1940	figurine
Piedra District		EMIII-PI	Roberts 1930	frog

reinforces the thesis of external relationships between the Southwest and cultures to the east. The stimulus and diffusion of specialized items entered the Southwest during Pueblo I and in the succeeding periods repeated contact with eastern groups brought new ideas and articles to the people of the Southwest. Even with this initial stimulus, pipes continued to be made in the traditional forms with these new types, except for the elbow pipe, being only marginally accepted. The pipe as a cultural item was considered and treated as an aesthetic article by the eastern groups whereas in the Southwest, although some ornamentation was acceptable, there was never the pre-occupation with carving and sculpting which characterizes many eastern pipes. Decoration in the Southwest was limited mainly to surface treatment in the form of painting, incising and polishing.

## CHAPTER 10

### UNUSUAL FORMS

In this group are a number of pipes which display some unusual feature setting them apart from the established types. Some of these pipes have, indeed, an unconventional exterior form, and others were relegated to this category because of an unusual feature or decorative attribute.

1. A wooden tubular shaped pipe with a long projection extending out from the rim, tapering to a point. This odd appurtenance may have been used for the attachment of pahos. The pipe was found in the Sinagua area at NA863 in association with a medicine box dating to the Pueblo II period (Bartlett 1934).

2. A stone tubular pipe with notched flanges on both sides of the pipe body, which were probably used for carrying or holding purposes. The pipe was found on the surface at Awatovi, a late Pueblo IV-V period site (Woodbury 1954).

3. A clay tubular pipe with a peculiar surface decoration consisting of 13 spines flaring at right angles from the rim of the bowl. In addition, the entire surface of the pipe was covered with spiral lines of punctations. This specimen was found at an Anasazi site in the La Plata District dating to Pueblo I times (Morris 1939).

4. A clay pipe with a long tapering stem and two bowls. This specimen may have been used ceremonially as it was found in

association with four other pipes and several figurines, at a site in the Pagosa-Piedra region (Jeancon 1924).

5. A clay pipe with a single bowl and two stems which was found in a pithouse at Shabik'eshchee Village dating to the Basketmaker III period (Roberts 1929).

6. A stone platform pipe found in a house structure at Pueblo Bonito dating from the Pueblo III period (Pepper 1920).

7. A clay platform pipe with an attachment for a stem, found at Jemez Springs (Toulouse 1937).

8. An unsmoked clay pipe fashioned from the handle of a gourd shaped pitcher. The bore was not completely perforated, and the pipe was found with a burial at a Basketmaker III-Pueblo I period site in the Piedra District (Roberts 1930).

9. A clay pipe made from the handle of a gourd shaped bottle. This item was found in a Basketmaker III pithouse in Chaco Canyon (Judd 1924).

10. Three clay pipes found together in a cache at a site in the Pagosa-Piedra region. These pipes are ten inches in length and are somewhat elbow shaped (Jeancon 1924).

## CHAPTER 11

### THE CLOUDBLOWER

The cloudblower warrants separate discussion because the term has been used indiscriminately by Southwestern archaeologists to refer to a pipe type which has never been definitely formalized. A cloudblower should not be considered a specific pipe type as the term itself has a functional connotation, which does not necessarily imply a particular pipe form or type as used here. This confusion between the functional and typological meaning of the term cloudblower is the basic reason for discussing the cloudblower in greater detail.

The name cloudblower was originally applied to tubular or conical pipes because the modern Pueblo Indians used a similar pipe for ceremonial purposes (Roberts 1929: 124). Since there has never been a well established pipe classification in the Southwest, the term cloudblower was applied at will to any tubular pipe, disregarding any variation within this broad category. In terms of my typology, the cloudblower is considered only in its functional sense (for blowing smoke clouds), as the exterior form is essentially meaningless for typological purposes.

Not all Southwestern archaeologists are guilty of using the cloudblower as an all-encompassing term to describe any straight pipe. Investigators such as Haury and Sayles (1947) and Martin and Rinaldo

(1940) to mention a few, have referred to the 'cloudblower type' as a short clay conical pipe which occurs most frequently at sites in the Anasazi area. According to my typology this 'cloudblower type' would be my conical pipe type, characterized by an expanded bowl end and smoked without an additional bit.

Among prehistoric Southwestern groups smoking was of ritual significance and involved special etiquette. The pipes that were used are commonly called cloudblowers, referring to a straight stemless pipe used for blowing clouds of smoke. Smoking was performed by the priests who blew smoke clouds before, during, and after ceremonial events. There is no general agreement on how the pipe was utilized to produce these smoke clouds, although two methods seem plausible. Firstly, the priest could inhale the smoke through the pipe and then blow clouds of smoke over the altar in the prescribed pattern. As many authors suggest, the priest would probably have to throw his head back to inhale the smoke in order to keep the tobacco from falling out of the pipe bowl. This technique would encourage the inhalation of tobacco, but archaeological evidence confirms the use of plugs to prevent this from occurring. Another method of blowing smoke clouds was for the priest to blow through the pipe rather than inhaling the smoke into his mouth. By this method the priest took the lighted pipe and placed the bowl end to his lips and by blowing through the pipe he forced large clouds of smoke out the small end (Fewkes 1894; Voth 1912). DiPeso tried smoking a pipe in this manner and he reported that "it did not burn my mouth when the lighted bowl was held to the

lips" (1957: 290), and furthermore the leaves (tobacco) burned evenly and quickly producing quantities of smoke clouds (op. cit. 288). Thus it may be inferred that smoke clouds could be produced by either method, although there may have been particular contextual meaning for each.

From ethnographic accounts it is known that the blowing of smoke clouds was part of every religious observance, and among the Hopi, priests determined the time of the ceremony by ritual smoking (Fewkes 1897). Most ceremonial smoking took place in the kiva, where priests consecrated pahos and blew smoke over the altar before dances and other ceremonial events. The absence of any reference to smoking by Spanish chroniclers suggests that this ritual must have been conducted in private, probably in the kivas.

In the kiva, puffs of smoke were blown to the four cardinal points and each puff was supposed to simulate the clouds and "to feed the clouds" (Parsons 1925: 37), thus bringing rain. Smoke clouds represent prayers which rise to the sky and attract the attention of the heavenly powers who answer the prayers by sending rain (Whiting 1939). Since most of the ceremonies of the Southwestern Indian groups are concerned with crops and the production of rain, ritual smoking is of great importance for efficacious results. To bring about results the priests follow a prescribed smoking ritual which includes having a special person light the pipe (cloudblower) with a cedar bark fuse. It is not definitely known what was smoked in aboriginal times, but ethnographic reports suggest a mixture of wild tobacco

(Nicotiana attenuata) and herbs. Whiting, in discussing the Hopi, says that "cloud tobacco is a mixture of native tobacco and the young leaves of spruce, pine and aspen which are used only for ceremonial smoking in the kiva" (1939: 40). Various mixtures were probably used, depending upon the time of year and the type of ceremony being performed. Today among Southwestern groups, wild tobacco must be used for ceremonial smoking even though commercial tobacco is readily available.

In the kiva the chief priest blows smoke clouds and offers prayers before passing the pipe around to the other priests. This aspect of the ceremony has special significance as when the pipe was passed around each individual exchanged kinship terms with the others (Robbins 1916). Upon completion of the ritual the pipe was carefully cleaned and the dottle was saved, although it was not used again (Fewkes 1898). Pipes were often stored in kivas, however, in an archaeological context they are found in residence units as well as in ceremonial structures.

Upon examining the archaeological evidence, it appears as though the conical pipe in my typology most closely resembles the 'cloudblower type' referred to in the literature. This type is found by Basketmaker II times at sites in the Anasazi area, and does not appear in other areas until later time periods. These pipes were usually made of clay and exhibit no interior bowl charring, a phenomenon which has prompted suggestions as to their use and function during prehistoric times. If indeed they were used as cloudblowers

in a religious context, they could not have been smoked in the manner previously described because a carbonaceous residue would have been left in the pipe bowl. An alternative method of blowing smoke clouds was described by Morris who suggests that cloudblowers were used "for guiding expelled smoke drawn into the mouth from another source" (1939: 166). If this technique was employed by religious functionaries then it would explain the consistent lack of bowl charring found among clay pipes. In addition, it may be inferred that all clay pipes may have been used as cloudblowers, regardless of their exterior form.

In comparing the Anasazi and Mogollon areas it is interesting to speculate upon the relative absence of the conical pipe type in the latter area. Conical pipes probably originated among the Anasazi and were usually made of clay, whereas in the Mogollon area clay was never a popular material for pipe making and conical pipes were not used extensively. Mogollon pipes were consistently made of stone during all periods, although there were intermittent attempts to experiment with clay for making pipes, especially after Anasazi influences reached the area. For the most part, however, the Mogollon preferred the stone tubular type pipe and the short cylindrical pipe in contrast to the Anasazi preference for clay conical pipes.

By using historic Southwestern groups as a model, we know that the cloudblower is an important aspect of all ceremonial observances. We may also assume that it was used similarly in the past which presents an interesting problem when comparing the archaeological evidence from Anasazi and Mogollon sites. Because the

traditional cloudblower type is not usually found at Mogollon sites nor are clay pipes found in general, I would like to suggest that the use and function of the pipe differed, in a religious context, between these two groups.

Among the Anasazi conical pipes were used as early as Basketmaker II times by peoples living predominately in caves as well as some open sites. Clay was the preferred material and the lack of bowl charring indicates that these pipes were probably used as cloudblowers in the performance of religious observances.

The appearance of kiva-like structures at Basketmaker III sites and some Basketmaker II sites, confirms the importance of ceremonial activity within the village and the possible use of conical pipes within these structures. In the Mogollon area, at a comparable time, there were considerable differences in house type and settlement pattern. The settlement pattern is of more interest here, as the lack of formal village organization and the appearance of variously shaped "great houses" or "communal houses" three to five times larger than the pithouses, is in direct contrast to the small compact villages and round kivas of the Basketmakers. These "great kivas" as suggested by Haury (1962: 124) are a major feature of Mogollon villages, presumably used for religious functions. As previously noted, conical pipes do not regularly occur at Mogollon sites and clay pipes in general are conspicuously absent. From my data, I have found no evidence of any traditional Mogollon pipe types, namely tubular and short cylindrical, occurring in association with these large communal

structures. Thus, it may be inferred that smoking was not an important part of Mogollon religion or possibly the communal houses were not used for religious purposes. Furthermore, if pipes were used in conjunction with religious activity, they were not used in the same way or for the same purpose as among the Anasazi. Mogollon pipes for the most part, do not resemble the cloudblower type, and were probably not used as such. It is more likely that they were smoked by inhaling rather than by blowing through the pipe, and that smoking was more of an individualized practice not as closely associated with ritual activity as among the Anasazi. Unfortunately it is very difficult to determine prehistoric non-ritual smoking from archaeological evidence, although the short cylindrical pipes characteristic of the Mogollon lacked surface decoration and were primarily found in pithouse association, indicating possible individual ownership. Moreover, the absence of a consistent village plan and the uncertain function of the large communal house, which was not a part of every village, makes non-ritual smoking seem more feasible. The tubular shape of the pipes, in contrast to conical, the use of bits, and the appearance of considerable bowl charring, all support the hypothesis that the Mogollon did not use pipes as cloudblowers in a religious context, but smoked by inhaling for personal satisfaction.

## CHAPTER 12

### SUMMARY

In establishing a pipe typology, form has served as the main criterion for classification as pipes in general do not possess the variety of distinctive attributes found among other classes of artifacts. The only type that did not show a significant areal and temporal distribution was the tubular type of pipe that has a pan-Southwestern distribution as well as a great temporal span. Within this type, however, there are several differences in decorative attributes and material used for manufacture that characterize cultural areas of the Southwest at specific time periods.

#### Types

##### Tubular Pipes

The differences between clay and stone tubular pipes go beyond the spatial and temporal distributions to the attributes comprising both the internal and external characteristics of these pipes. Many of the distinguishing characteristics can be attributed to the material used for manufacture, as both clay and stone dictate to some extent the processes of manufacture and the decorative techniques to be utilized. Cultural preference must not be overlooked as certain attributes are regionally circumscribed attesting to cultural prescription and tradition.

Stone and clay tubular pipes have differing interior forms that are, in part, a function of the material used for construction of the pipe. Stone pipes usually have straight tapering bores drilled from each end (Fig. 2 c) although a variety of forms occurred in the sample. Clay tubular pipes are characterized by a differentiated bore divided into a rounded bowl and narrow smoke passage (Fig. 2 a), but this form is not restricted to clay since it occurs among stone tubular pipes as well. A differentiated bore is the most functional type of interior form, and the malleability of clay permitted easy construction. By modeling the pipe bowl with the hands or around a shaped object, and by using a twig to form the narrow stem, a functional clay pipe could be constructed that could be smoked without an additional bit with a minimal flow of tobacco into the smoker's mouth. The difficulty of carving this type of bore in stone probably deterred the prehistoric pipemaker, and there was more reliance in stone pipes upon the straight tapering bore which was less functional but easier to construct by pecking, grinding and gouging. Stone tubular pipes with straight tapering bores were often smoked with an additional mouthpiece inserted into the stem end of the pipe and secured with gum or pitch, but the most obvious disadvantage of the straight tapering bore was the lack of a distinctly rounded bowl to keep tobacco from entering the stem portion of the pipe. To prevent the inhalation of burning tobacco, plugs made of clay or stone with beveled sides to allow the passage of air were placed in the pipe bore. Plugs

are rarely found in place archaeologically, but in several instances they were found in the bores of both stone and clay pipes.

The straight exterior form of tubular pipes is occasionally interrupted by a bevel near the bowl end of the pipe. Bevels are found mainly on stone pipes (Fig. 2 b), but a few occur as features of clay tubular pipes. What purpose these bevels served has not as yet been determined although it has been suggested that they were used for wrapping pahos and feathers during ceremonial events. The addition of painted decoration and beveling may indicate ceremonial usage for these pipes. The distribution of beveled pipes was limited to sites in the Mimbres and Cibola branches of the Mogollon area, where a number of beveled pipes were found with painted decoration. In other areas beveled pipes rarely occurred except at Pecos (Kidder 1932) where the phallic appearance of the beveled pipes may indicate a fertility cult.

The surface decoration of tubular pipes remained exceedingly simple with little stylistic change through time, although some decorative techniques specify cultural areas. Polishing, incising, painting and combinations of these attributes were the main decorative techniques used to embellish the surfaces of tubular pipes. The material used for manufacture played an important part in determining the type of decoration applied to the pipe surface. Clay pipes were fired and the plastic qualities of clay permitted experimentation with punctation and impressed decoration. Stone tubular pipes, if decorated, were usually painted or polished with combinations of

attributes occurring on some examples. Polished stone tubular pipes were found at sites in the Anasazi area dating from the Basketmaker II and III periods, but this technique did not occur among the Mogollon until Pueblo III when Anasazi influence was well established in the area. Polished clay pipes occur in abundance at late Anasazi sites (Pueblo IV), and polishing and slipping was a common combination of decorative attributes.

Incised decoration was applied to the surface of clay and stone tubular pipes in a haphazard manner with no apparent regular patterning of the incisions. The method of incising was the same among the Mogollon and Anasazi although the latter incised clay tubular pipes and the former only the stone tubular variety. This division between areas based on material is seen throughout this type as the Mogollon continued to use stone for pipe manufacture even after the Anasazi had become culturally dominant in the area. Painting is another Mogollon attribute which withstood Anasazi pressure. From the Georgetown phase through Pueblo IV, distinctly painted stone tubular pipes were characteristic of Mimbres branch sites. The painted design covered the entire surface of the pipe and incorporated as many as four different colors in elaborate stripe designs. These pipes were often slipped a solid color before application of the stripes, but a slip was not a prerequisite to painting. A few clay tubular pipes with this type of design were found at Mogollon sites, but the majority of the painted clay pipes were from the Anasazi area. Among the Anasazi, paint was applied in a linear design on a specific

portion of the pipe surface with no overall coverage as seen among Mogollon painted pipes. Many of the Anasazi examples were white-slipped with black-on-white designs that corresponded to pottery design styles.

In the Anasazi area clay pipes were found with punctate decoration covering the entire pipe surface. Punctate designs often spiralled around the pipe body or ran diagonally from end to end. These pipes occurred as early as Basketmaker III and were limited spatially to the Anasazi region and the northern periphery of the Southwest.

The recognition of pipes by investigators and the presumed use of them for smoking has always been accepted by the Southwestern archaeological fraternity with little or no question of the validity of the interpretation. Evidence from my sample shows, however, that such an interpretation should be considered with more caution. Just as smoking need not mean the use of tobacco, the appearance of a pipe-like object that evinces no evidence of having been smoked should not be unquestionably assumed to be a smoking pipe. In the tubular category a large number of stone pipes show interior charring and the bowls contain the remains of a dottle, but this evidence is not present among clay tubular pipes or for that matter among any clay pipe types except for the elbow pipe. The consistent absence of bowl charring among most clay pipe types is most interesting, although, unfortunately, no ready-made explanations are forthcoming. I have, however, offered several suggestions that might explain this unusual

situation, the most plausible being that clay pipes were used as cloudblowers in a ceremonial context rather than for smoking.

Smoked stone tubular pipes were found in all areas of the Southwest with several examples occurring as early as 500 B.C. at the Cienega Creek site (Haury 1957) located in the Black River branch of the Mogollon area. From this evidence it may be inferred that smoking was an integral part of the cultural system of groups at a Desert Culture stage of development. Smoked bone tubes from Danger Cave (Jennings 1957) dating from 2000 B.C. lend additional support to this argument.

Because of the long temporal span of stone tubular pipes, they occur in association with all provenience units. Clay tubular pipes evolved later in time and have a more limited distribution among provenience features. Few clay pipes were found at cave sites although during Basketmaker II and III a large number of stone tubular pipes occurred in caves in all cultural areas of the Southwest. Many of these pipes had been definitely smoked indicating that caves may have been used as places for ritual smoking before the introduction of the true kiva into the Southwestern architectural complex. After Pueblo I few pipes were found in caves.

A number of stone tubular pipes were found in pithouse structures at Anasazi and Mogollon sites as well as sites located along the Anasazi-Mogollon frontier. These sites date to the Basketmaker period and the pipes themselves exhibit little or no decoration. The few clay tubular pipes that came from pithouses were found at sites

in the Anasazi area dating as late as Pueblo II. Most of the clay tubular pipes came from above ground masonry structures in the Anasazi area dating from late Basketmaker III through the Pueblo IV period, although in the Mogollon area clay tubular pipes did not occur in unit type dwellings until at least Pueblo III.

Stone tubular pipes were rarely found in association with kivas indicating that either stone tubular pipes were not used in kiva ritual or they were not stored in the kiva. But, since many clay tubular pipes were found in kivas, especially from late (Pueblo III-IV) Anasazi sites, it is more likely that they were used as cloud-blowers during ceremonial events. In the Mogollon area the relative absence of clay tubular pipes suggests that clay was not the preferred material for ceremonial smoking and that stone tubular pipes with painted decoration had more ceremonial significance.

Both stone and clay tubular pipes were occasionally found as burial accompaniments, although stone pipes were definitely preferred for this purpose.

The areal distribution of stone tubular pipes encompasses the greater Southwestern area, with a temporal span beginning at a Desert Culture level and extending through all developmental stages into the historic period. Pipes in association with Desert Culture material were found in the Mogollon and Hohokam areas, with Basketmaker II being the earliest occurrence of these pipes in the Anasazi area. In both the Mogollon and Anasazi regions stone tubular pipes continued to be used during all periods with minimal stylistic change in pipe

form or decorative attributes. As already noted the Hohokam were traditionally cane cigarette smokers, although pipes found at Ventana Cave (Haury 1950) dating from the Chiricahua-Amargosa level around 2000 B.C., and a group of stone tubular pipes from Tumacacori (DiPeso 1956) from the historic occupation of the site, show that pipes were sometimes utilized by the inhabitants of southern Arizona. But, the important problem is to explain the several thousand year hiatus between the Desert Culture stage and the historic period when pipes were not used. Haury (1965) has recently suggested that the Hohokam may be the result of a migration of people from Mesoamerica who entered southern Arizona around the time of Christ. Since pipes were unknown in Mexico until A.D. 1000 (Porter 1948), and cane cigarettes were the normal smoking device it is conceivable that the Hohokam moved into the area introducing cane cigarettes to the indigenous population. Furthermore, the reintroduction of pipes into southern Arizona during historic times may be attributed to the Spaniards who had learned of pipe smoking from the Indians of Mexico.

Clay tubular pipes have a restricted areal and temporal distribution in comparison to the stone variety. It is likely that clay tubular pipes originated among the Anasazi during Basketmaker III, subsequently diffusing southward to the Mogollon who never fully accepted clay as a basic material for pipe making. A few clay tubular pipes occurred at Mogollon sites dating from the Pueblo II period or later, but clay pipes were never found in abundance as among the Anasazi. By late Basketmaker III and in all succeeding

periods the Anasazi used clay tubular pipes with an obvious preference for this type over the stone variety.

Religious specialization and experimentation reached a peak in the Anasazi area during the Pueblo III and IV periods when a maximum of new ideas were filtering into the area. It is at this time that we see a significant increase in the number of clay pipes found, especially at such large sites as Pueblo Bonito, Te'ewi and Paa-ko suggesting an increase in ceremonial activity concomitant with the number of clay pipes being used.

#### Trumpet-Shaped Tubular Pipes

Trumpet-shaped tubular pipes were made of clay and have a specialized exterior form setting them apart from the other pipe types. The shape of the bowl resembles the end of a trumpet with wide flaring sides that were not well designed for holding burning tobacco (Fig. 4 d). The rest of the pipe consisted of a thin tube-like stem, often several inches in length, that opened into the flaring bowl end of the pipe. Most of these pipes were carefully constructed having a delicate appearance, which may explain why so few examples have been found.

Trumpet-shaped tubular pipes were customarily well decorated, although the four examples from Utah were conspicuously free of any surface decoration. Those from Anasazi sites exhibit sophisticated black-on-white painted designs reminiscent of the pottery types found in the same area (Fig. 4 a). Designs were applied to all parts of the pipe body including, in one instance, the interior surface of the

bowl. Pipes from Anasazi sites date as early as the Pueblo I period, but most came from Pueblo III sites located in Chaco Canyon.

The shallow flaring bowl of these pipes was not used for holding tobacco although one pipe shows some interior bowl charring. It is more likely that trumpet-shaped pipes were used as cloudblowers during ceremonial events. Ethnographic material supports this idea as Morris (1939) has suggested that the priest held the bowl end of the pipe to his lips and blew smoke through the pipe bowl and out the stem end. By using this method to blow smoke clouds the pipe bowl would be left free of tobacco stains, as the priest used the pipe as a vehicle for guiding the smoke drawn into his mouth from another source.

Provenience data provided additional evidence to verify the ceremonial usage of these pipes. Only five of the nine pipes could be coded for provenience, and all were found in kivas. This association plus the non-utilitarian form of the pipe, points to a specialized usage concerned with ritual activity.

Trumpet-shaped pipes have an areal distribution limited to the Anasazi area and the northern periphery where they did not occur before Pueblo I. In the Anasazi area the earliest example came from a Pueblo I site located in the La Plata District, although the remaining examples were from Pueblo II and III sites located in and around Chaco Canyon. Several of the Utah specimens could not be accurately dated, but the pipe from Paragonah (Steward 1936) dates from Pueblo I, and the other example from Alkali Ridge (Brew 1946) had Pueblo II origins.

### Short Cylindrical Pipes

Short cylindrical pipes look like a shortened version of the tubular type of pipe (Fig. 3 c, d) but instead of having a slender tubular exterior form these pipes are usually only a few centimeters in length and have a thick squatty appearance. I have not included them as a subtype of the tubular type pipes because their distribution is limited to the Mogollon area and stone was definitely the preferred material for manufacture. Other attributes, as well, serve to distinguish short cylindrical pipes as a legitimate type.

Most short cylindrical pipes were made of stone. The few clay specimens that occur have the same spatial distribution as stone examples although their temporal placement is later in time. Stone pipes have straight tapering bores, but differentiated bores have been found on occasion. An hourglass-shaped bore that resulted from drilling from each end of the pipe is a not unusual feature of this type (Fig. 3 d). Bores of this shape occur infrequently among tubular pipes because the interior was usually reamed out producing a smooth effect, but in the short cylindrical group bores were not treated with such care. Wheat (1954) found pipes with this type of interior form as early as Basketmaker II at Crooked Ridge Village and by the beginning of Basketmaker III pipes with straight tapering bores were found at the SU site (Martin and Rinaldo 1940). Not enough information was available about clay short cylindrical pipes to compare the interior forms of the clay and stone varieties. From a total of nine clay pipes only two could be coded for interior form, one had

a straight tapering bore like most stone pipes and the other example had a differentiated bore divided into a widened bowl and constricted smoke passage. Both of these pipes were from Mogollon sites dating after the Pueblo II period.

Although only seven stone short cylindrical pipes were found with a bit still in place, it may be inferred that these pipes were usually smoked with an additional mouthpiece (Fig. 3 c). In several instances remains of the cementing material found in the pipe stem supports this inference, and the shape of the pipe itself and the straight tapering bore are additional evidence suggesting the use of a bit. Without the use of an additional mouthpiece the smoker would be inhaling burning tobacco as well as burning his lips when the pipe became hot. A bit would alleviate these problems making short cylindrical pipes a more functional smoking device. None of the clay pipes had a bit still in the stem, although several authors suggested that one had originally been used. Most of the pipes found with bits still in place came from sites in the Mogollon area, but other examples came from the transitional zone, the Anasazi area and one was found at U-Bar Cave (Lambert and Ambler 1961) assigned to the Casas Grandes Culture. The Mogollon specimens date to the late Basketmaker II-early Basketmaker III period while the other examples came from sites dating to later time periods.

Even though a significant number of stone tubular pipes from the Mogollon area exhibit elaborately painted surfaces, this decorative technique was not applied to stone short cylindrical pipes. The

only decorated pipe had a polished surface and came from a Pueblo II site located in the Anasazi area. Polishing was definitely an Anasazi technique that was rarely used by the Mogollon to decorate pipes. The absence of decoration among stone short cylindrical pipes does not apply to the clay variety which, although fewer in number, exhibits more surface ornamentation. Two clay pipes were decorated with combinations of decorative attributes including polishing and slipping as well as painting. Both pipes were found at Mogollon sites dating to the Pueblo period when Anasazi influence was well established in the area. Since the Mogollon did not normally use clay for pipe making it is possible that the Anasazi introduced this idea. The Mogollon continued to make short cylindrical pipes, but instead of using stone they began to experiment with clay, incorporating surface decoration into the total configuration. Since few clay short cylindrical pipes have been found at Mogollon sites, either clay proved to be unsatisfactory or pressures from the Anasazi curtailed the production of this pipe type.

Stone short cylindrical pipes were definitely smoked as a number of specimens have heavily caked bowls indicating prolonged usage. These pipes came from sites dating as early as the Basketmaker II period attesting to the importance of smoking within the cultural system at an early time. None of the clay pipes show evidence of having been smoked.

Both stone and clay short cylindrical pipes tended to be associated with particular provenience units. Stone pipes came from

pithouses located in the Mogollon area and the transitional zone dating to the Basketmaker period. With the onset of the Pueblo period fewer stone short cylindrical pipes were being manufactured although several were found in surface masonry structures in the Anasazi and Hohokam areas. Clay pipes, however, had a later temporal distribution and were found mainly in pueblo structures in the Mogollon area. Since these pipes were usually found in residence units they may have been individually owned. Furthermore, they were easily constructed and show little surface ornamentation supporting the idea that they may have been made for personal use.

Stone and clay short cylindrical pipes have a limited areal distribution centered within the Mogollon area. Short cylindrical pipes originated in this area and stone pipes were in use by the Basketmaker II period at the SU site and Crooked Ridge Village. Mogollon influence began to spread northward at this time and stone short cylindrical pipes occur by Basketmaker III at sites located in the transitional zone. They continued to be used in this area as examples from Kiatuthlanna date to Pueblo I times. This pipe type was never adopted by the Anasazi and only a few isolated examples have been found north of the transitional zone. By Pueblo II there was a reversal of influence and the Anasazi were now the dominant cultural force. Influences from the north entered the Mogollon area and for the first time short cylindrical pipes were produced from clay. These pipes were made on a limited basis occurring at Mogollon sites dating as early as Pueblo II and as late as the Pueblo IV period.

Although the Mogollon area was the center of short cylindrical pipe production, a few examples have been found in the Hohokam area and at sites located in the northern periphery of the Southwest.

### Conical Pipes

Conical pipes were usually made of clay, with a distinctly widened bowl end (Fig. 3 b) distinguishing them from the more straight-sided tubular type of pipe. Many investigators have referred to conical pipes as the "cloudblower type," and although they may have been used for this purpose, it is more important to establish these pipes as a type by using distinguishing attributes rather than a taxonomic label denoting their function.

The distribution of both stone and clay conical pipes is largely limited to the Anasazi area where the majority of conical pipes have been found; but they occur as well in the Mogollon area, and scattered examples have been found in other areas of the Southwest. Clay pipes are distinguished by having a differentiated interior form with the narrow stem serving as the mouthpiece. Neither clay nor stone conical pipes have been found with bits still in place, even though stone pipes had straight tapering bores. It seems more likely that a pipe with a straight tapering bore would have been smoked with a bit, but there is no concrete evidence to correlate these two attributes.

Conical pipes exhibit little surface decoration, and many of the decorated examples were found outside the Anasazi area. Polishing, although usually an Anasazi decorative characteristic, was used to

decorate several clay conical pipes from Bear Ruin located in the Forestdale branch of the Mogollon area. Mogollon settlements in the Forestdale Valley received more influence from the Anasazi during all phases of development than most Mogollon areas, which may explain the number of polished clay pipes from this area. The other polished pipe came from an Anasazi site dating to Basketmaker III times when Bear Ruin was occupied. Stone polished pipes, however, came solely from Basketmaker cave sites located in the northern portion of the Anasazi area. Other decoration includes incising (Fig. 3 b) which characterizes both stone and clay conical pipes from the Mogollon area, as well as several from Hohokam sites. Impressed decoration was used to texture the surfaces of clay pipes from Anasazi and Mogollon sites, and the only painted pipe came from a Pueblo I site in the La Plata District.

Clay conical pipes show no evidence of having been smoked, though stone pipes with charred bowls have been recovered from Anasazi and Mogollon sites dating to the Basketmaker II period.

In the Anasazi area subsurface kiva-like structures have been found at Basketmaker III sites, and recent excavation near Houck has produced ceremonial structures in association with Basketmaker II cultural material (George Gumerman, personal communication). The appearance of these structures during Basketmaker times helps to substantiate the claim that clay conical pipes which date early in time (Basketmaker II and III) were used as cloudblowers, thus explaining the absence of bowl charring among these pipes.

Since conical pipes have an early temporal distribution, they were found mainly in caves and pithouse structures located in northeastern Arizona, dating as early as Basketmaker II. The Anasazi region continued to be the center of conical pipe production through Pueblo I, and few conical pipes were found in above ground masonry structures in this area. By Pueblo II a number of clay conical pipes occurred at the Swarts Ruin in the Mogollon area, as well as at several sites in the Sinagua area, but in later periods few conical pipes were found in any area of the Southwest.

Although clay and stone conical pipes probably originated in the Anasazi area by Basketmaker II, a few examples have been found at Mogollon sites dating to the same time period. Conical pipes disappeared after Pueblo I in the Anasazi area, but they persisted in reduced number through Pueblo IV among the Mogollon. Beyond these two main cultural areas pipes occurred by Pueblo I in the Sinagua area and at several Hohokam sites dating after A.D. 1000. I think it is safe to assume that the Anasazi were the originators of the conical type of pipe with the Mogollon acquiring this type from their northern neighbors.

#### Shouldered Conical Pipes

The main differentiating feature between these pipes and the conical type is a prominent shoulder separating the bowl and stem (Fig. 3 a). Otherwise shouldered conical pipes were made of clay and resemble clay conical pipes in having an interior form divided into a distinctly rounded bowl and narrow stem. The stem provided

an adequate mouthpiece and bits were not found in association with these pipes.

Surface decoration was sparse with polishing and punctations comprising the total decorative effort. A number of pipes in the sample came from Mogollon sites, the SU site in particular, where several decorated examples were found. This site dates to late Basketmaker II, and the only other decorated pipe came from a Pueblo I site located in the northern Anasazi region.

Shouldered conical pipes evince no evidence of having been smoked, a phenomenon in line with other clay pipe types which were evidently not used for tobacco smoking.

All the shouldered conical pipes in the sample were found in pithouse structures except for one example that was found in an above ground masonry structure at Pueblo Bonito.

The Mogollon area stands out as the principal center of shouldered conical pipe production, and by late Basketmaker II pipes were found at Crooked Ridge Village and the SU site. In other areas none of the pipes came from sites dating earlier than Basketmaker III.

Pipes from sites located beyond the confines of the Mogollon area show considerable variation in shouldered effect and total exterior configuration. This variation as well as the random spatial and temporal distribution of these pipes suggests that shouldered conical pipes were not a "constructional idea," but the result of an experiment or accident on the part of the maker. In the Mogollon area, however, this is not the case as the pipes found show

considerable homogeneity in shape and cluster temporally within a specific time range.

### Elbow Pipes

Elbow pipes represent the most functional smoking pipe used by prehistoric Southwesterners. This is the first pipe type to be considered that has a strikingly different exterior form from a generalized tubular shape. All tubular pipes are alike in that the bowl and stem are set in a horizontal alignment that creates certain functional difficulties. The elbow pipe has an exterior form similar to the modern pipe (Fig. 4 c) which eliminates many of the problems that must have plagued smokers of tubular pipes. There is less chance of burning tobacco entering the smoker's mouth as the bowl is a separate unit set vertically at a right angle to the tubular stem. The stem was carefully constructed, having a narrow perforation providing a better smoke. Since the stem was narrow and easily held between the lips, there was no necessity to insert a separate mouthpiece. In archaeological context few bits have been found in place, although ethnographic evidence suggests that additional stems may have been used more frequently than previously thought. Most elbow pipes were made of clay and the few stone examples found often had unfinished bores or consisted of a pipe bowl and short stem suggesting the use of a reed or wooden bit. The difficulties encountered when carving a stone elbow pipe would have been greatly alleviated if only the bowl was carved from stone, using a detachable stem to complete the pipe.

Although clay elbow pipes were elaborately decorated, the stone variety was left relatively free of surface ornamentation except for occasional polishing. Clay elbow pipes were usually painted and exhibit combinations of decorative attributes including polishing, slipping and painting. Most of the examples were slipped white before application of a black linear design that covered varying portions of the pipe surface (Fig. 4 a). The elements of style correspond to pottery design styles which by Pueblo III reached a peak of elaboration in the Anasazi area.

Clay elbow pipes are the only clay pipes of all those considered that show evidence of having been smoked. None of the smoked elbow pipes were decorated nor were they found archaeologically in kivas, even though this association of features (surface decoration and kiva association) was a common occurrence among unsmoked clay elbow pipes in the sample. From this evidence an inference may be drawn connecting ceremonial activity and the use of decorated clay elbow pipes, probably for smoking within the kiva. Undecorated clay elbow pipes that show bowl charring were found in residence units where they were probably smoked for personal enjoyment.

Most investigators would agree that elbow pipes did not develop independently in the Southwest, but entered the puebloan area from an Eastern source during Pueblo I. At this time people were moving out of subterranean pithouse structures into more sophisticated above ground masonry type dwellings. Kivas also became an integral part of the architectural complex and elbow pipes were found mainly in ceremonial rooms and residence units.

Elbow pipes were not found at Mogollon sites, and their distribution is limited to the Anasazi area and the northern periphery. They first appeared at Pueblo I sites in southwestern Colorado, subsequently diffusing west into Utah and south to Chaco Canyon, where a number of elaborately decorated specimens were found at Pueblo Bonito. Few elbow pipes were found at sites in the Rio Grande Valley until Pueblo IV when large numbers of undecorated specimens were recovered from Paa-ko and Pecos as well as other sites.

#### Effigy Pipes

Effigy pipes did not develop in the Southwest, but diffused into the area along with other exotic elements including elbow pipes. Effigy pipes are the hallmark of the Eastern Woodland tradition, but the Southwestern examples do not compare in quality with the sophisticated eastern prototypes. The few Southwestern effigy pipes were made of clay and were modeled in the form of various animals (Fig. 4 d) although one pipe resembled a human figure. These pipes came from sites located in the Anasazi area and the northern periphery, and none dated before Pueblo I. Most of the pipes have Pueblo IV origins and a number came from the Pueblo of Pecos.

#### Pipe Development in the Southwest

After more than half a century of intensive archaeological investigation the Southwest has emerged as a distinct archaeological province composed of three main cultural traditions as well as numerous subtraditions. The three main cultural traditions, Anasazi,

Mogollon and Hohokam, have been distinguished temporally and spatially by using cultural elements such as pottery and architecture as diagnostic criteria. The utility of other classes of artifacts for comparative purposes has been little explored, and because of this bias large blocks of information have been lost for archaeological interpretation.

In this study I have concentrated upon a lesser known class of artifactual material, the smoking pipe and associated paraphernalia. Each cultural tradition in the Southwest may be characterized by one or more pipe types. By plotting the distribution of these types in time and space, it is possible to delineate the avenues of communication between these groups and to indicate cultural interchange at a particular time.

In the Hohokam area cane cigarettes rather than pipes were the traditional smoking device. The few pipes that have been found in this area were in association with Desert Culture material, and after the intrusion (?) of the Hohokam into the area around A.D. 1 pipes disappear from the cultural inventory. During the span of Hohokam cultural development cane cigarettes continued to be the favored smoking device and the few pipes that have been found at Hohokam sites must be considered intrusive items. With the beginning of the historic period, pipes were reintroduced to the people of southern Arizona by the Spaniards. Although a cache of pipes was found at the historic site of Tumacacori, there is no evidence to suggest that pipes were widely accepted by groups living in the Hohokam area.

Throughout this study I have considered the Mogollon as a separate cultural entity, distinct from the Anasazi and Hohokam, and evidence from my sample supports the cultural distinctiveness of this group. Pipe smoking in the Mogollon area has a long history stemming from the Desert Culture and persisting during all phases of Mogollon growth and development. By Basketmaker II, Georgetown phase in the Mogollon chronology, the Mogollon were producing a distinctive short cylindrical pipe type made of stone. This pipe type spread north to the transitional zone where short cylindrical pipes were found in pit-houses at the Flattop and Twin Butte sites as well as Kiatuthlanna. In this zone separating the Mogollon and Anasazi areas, sites contain cultural elements from each group with some sites evincing stylistic blending while others show evidence of simultaneous Anasazi and Mogollon occupation with each group remaining culturally distinct. Although short cylindrical pipes were utilized in the transitional zone, the Anasazi living to the north never accepted this type of pipe.

To further distinguish the Mogollon as a separate cultural entity prior to A.D. 900, another pipe type may be cited as a distinct Mogollon creation. Shouldered conical pipes were produced on a limited basis, judging from the size of the sample, and they occurred at Mogollon sites by the late Basketmaker II period. These pipes were made of clay, a material not favored by the Mogollon, and were smoked without a bit. The scarcity of clay pipes in comparison to the large numbers of stone examples found at Mogollon sites indicates that the

use of clay for making pipes was unsatisfactory or that cultural prescription dictated the use of stone for pipe production. Although tubular pipes are considered a pan-Southwestern type, subdivisions based on material and decorative techniques, show that the Mogollon definitely preferred stone tubular pipes. Pipes were decorated in an "overall" pattern imitating Mogollon pottery design layout, and the occurrence of a number of painted stone tubular pipes with beveled ends suggests a possible ceremonial usage for these pipes.

Since Mogollon pipes usually have charred bowls it may be inferred that the pipes were smoked by inhaling the smoke although it is not known whether for ritual or non-ritual use. In the Anasazi area, however, I suspect that smoking was conducted primarily in a ceremonial context. The priest used the pipe as a cloudblower which left the pipe free of interior charring, and explains the large number of unsmoked clay pipes found at Anasazi sites.

The pipe types used by the Mogollon remained remarkably unchanged through all periods of development. There was no trend toward greater complexity in pipe form, and pipe types remained relatively stable after A.D. 900 when the Mogollon were gradually losing their cultural identity. At this time we see the gradual demise of Mogollon pipe types although the Mogollon did not adopt Anasazi pipes to any extent.

Sedentary village life began appreciably later in the Anasazi area than in either the Mogollon or Hohokam areas and, although it is assumed that the Anasazi developed from a Desert Culture base, there

is no positive archaeological evidence documenting this transition. Pipes first appeared during Basketmaker II at caves in northeastern Arizona where stone was the first material utilized for conical pipe making, but evidence from Woodchuck Cave indicates experimentation with clay for pipe making at the same time. The advantages of clay for pipe making were quickly realized by the Anasazi and by Basketmaker III clay conical pipes were in use in most parts of the Anasazi region. Clay continued to be the preferred material for pipe making among the Anasazi during all periods, and by the beginning of Pueblo I there was an obvious increase in the complexity of pipe forms, due in part to external influence. Elbow pipes first appeared in the Southwest at this time (Pueblo I), diffusing into the area from an Eastern source. The exterior form of these pipes resembles the modern pipe, having distinct functional advantages over the tubular type of pipe. In contrast, the trumpet-shaped tubular pipe (Fig. 4 b) that developed independently among the Anasazi was non-functional for smoking purposes, having a wide flaring bowl inadequate for holding tobacco. Both of these types of pipes were usually made of clay and showed elaborate painted decoration. By Pueblo III they were distributed throughout the Anasazi area. At this time there was increased contact with the Mogollon to the south. After A.D. 1000 the Mogollon were under the influence of the Anasazi, and although some Anasazi pipe types (mainly conical) were accepted on a limited basis, there is no evidence for the use of either trumpet-shaped tubular pipes or elbow pipes by the Mogollon.

These two pipe types were rejected by the Mogollon because they were part of a religious complex limited to the puebloan area. Their use was probably restricted to the ceremonial sphere where they were used as cloudblowers during kiva ritual. This inference has developed from the consistent absence of interior charring among clay pipes found in the Anasazi area. It is known that the Anasazi relied upon smoke clouds as a form of sympathetic magic to encourage the gods to send rain. Most ceremonies were concerned with rain and rain-making, a central theme that runs through puebloan religion because of their particular ecological setting. The summer rainfall was a necessity for the success of farming in the plateau area (Anasazi area), whereas among the Mogollon the ecological setting was characterized by dispersed settlements in well watered mountain valleys. Thus, we might hypothesize that an annual summer rain was not a critical factor for farming, so religious ceremonies would not take the same form as among the Anasazi, centering around the rain cloud. Therefore, the Mogollon might reject pipe types intimately connected with a ceremony that had little meaning to their way of life. Mogollon settlement pattern plus the questioned use of the large communal houses not found in all villages, strengthens the argument for individual smoking for pleasure among the Mogollon rather than for purely ceremonial purposes as suspected among puebloan groups.

In the northern periphery tubular pipes occur in a Desert Culture context, although a variety of pipe types appear in the area with the development of the Anasazi cultural tradition. Contact

opened up between the Anasazi and the northern periphery during Basketmaker III and in the subsequent periods modified versions of Anasazi pipe types occurred at Utah sites. Although the form of these pipes was roughly similar to Anasazi prototypes, there was a lack of decoration for most types and the bowl form of elbow pipes showed less angularity.

Unfortunately not much work has been done in this area and information on pipes is meager. Excavated sites were not well dated, although the majority were occupied prior to Pueblo III. During Pueblo III development in the northern periphery came to an end when the area was gradually abandoned.

To conclude, in the Southwest the first pipes were found in a Desert Culture context. Later, with the emergence of regional traditions, pipe types developed that characterized each culture area. As regional development became more specialized we can trace the internal southwestern cultural relationships as well as recognize the intrusion of foreign elements into the area at various time periods. Among these foreign elements were several new pipe types that differed significantly from the indigenous tubular pipes. Connections between the east and Southwest were particularly intense and, conversely, there is little evidence of trade between the Southwest and the West. Steatite pipes, which are characteristic of California groups, occur on occasion at Southwestern sites, but because of the basic similarity in pipe form between these two areas it is difficult to establish whether a pipe was an intrusive or not. In Mexico, pipes did not

occur until A.D. 1000 and tubular pipes were not the earliest type of pipe found as in the Southwest. Even though the Southwest and Mexico are geographically contiguous, the absence of tubular pipes at Mexican sites rules out the Southwest as the stimulus for the Mexican pattern. It is more likely that pipes diffused into Mexico from a Southwestern source because elbow pipes characterize Eastern traditions and were the earliest type found in Mexico.

On the same time level, after developing in relative isolation, the Southwest in the post-Pueblo I period becomes more receptive to foreign influence. It is only after this time that Eastern sources became a major factor explaining the increased pipe variety found. Thus, in this respect the Southwest and Mexico both owe a valued trait to the Mississippi area, one further proof of the cultural vitality of that region.

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