



THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
57 SOUTH EAST ASIAN AVENUE
CHICAGO, ILLINOIS 60607

RESEARCH REPORT
NO. 111759

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY

CHICAGO, ILLINOIS

1971

111759

GILA POLYCHROMES;
THE ORIGIN AND DEVELOPMENT OF POLYCHROME POTTERY
IN THE GILA RIVER DRAINAGE AREA

by

Linda Young Guenther

A Thesis

submitted to the faculty of the

Department of Archeology

in partial fulfillment of
the requirements for the degree of

Master of Arts

in the Graduate College

University of Arizona

1937

Approved:

Byron Cummings, May 17, '37
Major Professor Date.

E9791
1937
V.7

I wish to express my deep appreciation to Dr. Byron Cummings who made my graduate work possible and who placed at my disposal much of the unpublished results of his work; to the faculty of the Department of Archeology for their assistance and guidance; and to my husband for his help and courage through this critical time.

TABLE OF CONTENTS

CHAPTER I	THE GILA RIVER AREA	1
CHAPTER II	CULTURES OF THE GILA RIVER AREA	7
	The Lower Gila Area	7
	The Middle Gila Area	9
	The Upper Gila Area	15
CHAPTER III	EARLY GILA POLYCHROME	17
	The Beginning of Pottery	17
	Black-on-White Ware	20
	Tularosa	20
	Roosevelt	21
	Black-on-Red Ware	222
	Early Gila Polychrome	24
	Development	24
	Characteristics	24
	Distribution	27
	Influences	28
	Approximate Dating	28
CHAPTER IV	LATE GILA POLYCHROME	30
	Characteristics	30
	Differences from Early Gila Poly.	30
	Distribution	32
	Influences	33
	Approximate Dating	34
CHAPTER V	OTHER POLYCHROMES OF THE GILA AREA	35
	Hohokam Polychrome	35

Tucson Polychrome	37
Nogales Polychrome	38
Prescott Polychrome	39
Miscellaneous Polychromes	40
Cibeque Polychrome	40
Fort Apache	40
Santa Cruz Polychrome	41
A University Ruin Polychrome	41
CHAPTER VI INTRUSIVE POLYCHROMES	43
Casas Grandes Polychrome	43
Mimbres Polychrome	44
El Paso Polychrome	44
Old Hopi Polychrome	45
Four Mile Polychrome	45
Pinedale Polychrome	46
Bidahochi and Winslow Polychromes	47
CHAPTER VII CONCLUSION	48
BIBLIOGRAPHY	

MAPS

Figure 1.	Gila River Drainage Area	after 2
Figure 2.	The Southwest and Its Culture Areas .	after 8
Figure 3.	Distribution of Gila Polychrome . . .	after 32
Figure 4.	Distribution of Four Mile Polychrome .	after 45

Illustrations

Plate I	Roosevelt Black-on-White	after 20
Plate II	Middle Gila Black-on-Red	after 22
Plate III	Early Gila Polychrome	after 24
Plate IV	Early Gila Polychrome	after 26
Plate V	Late Gila Polychrome	after 30
Plate VI	Tucson Polychrome	after 36
Plate VII	Casas Grandes Polychrome	after 42
Plate VIII	Mimbres Polychrome	after 43
Plate IX	Four Mile Polychrome	after 44

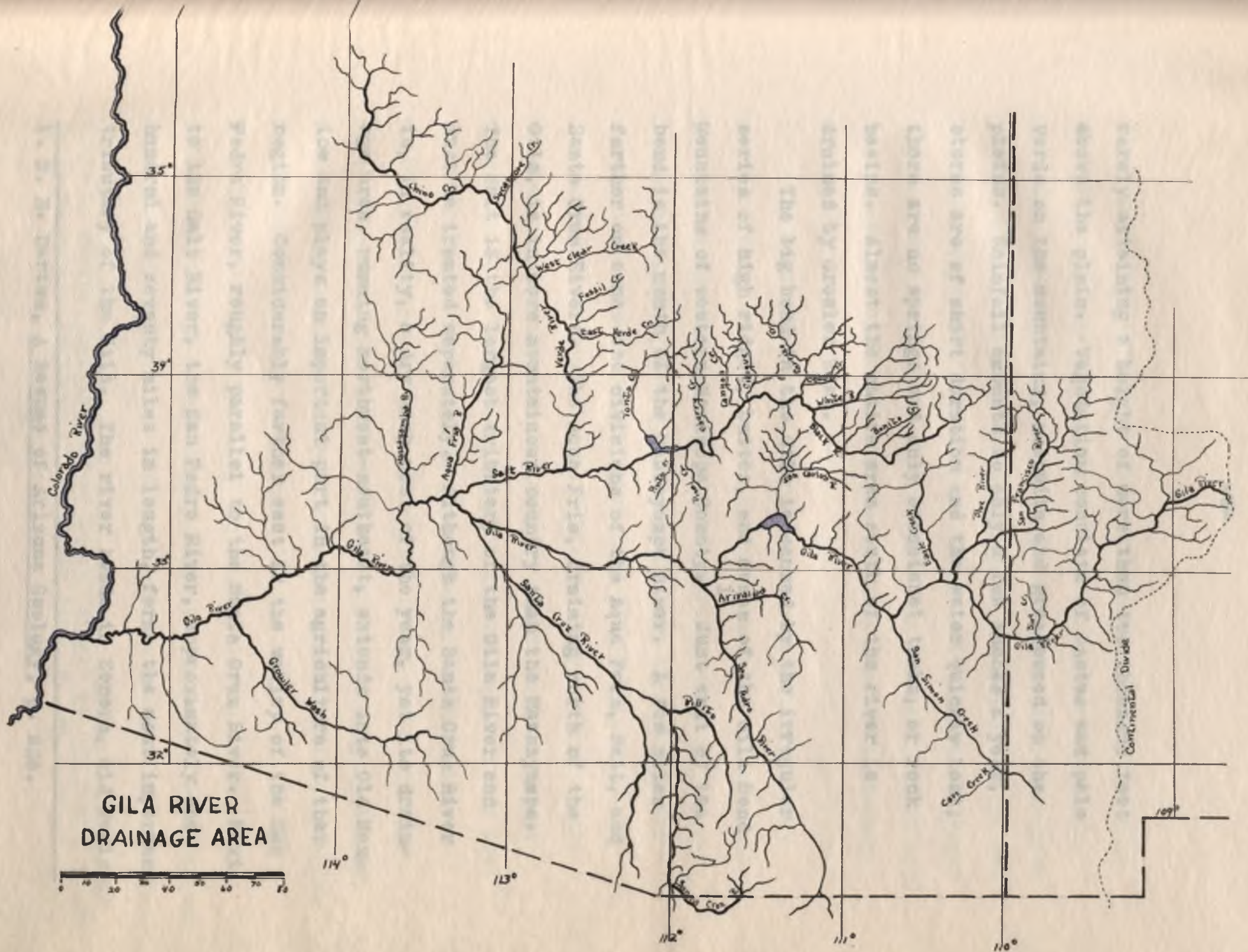
CHAPTER I

THE GILA RIVER AREA

The story of the rivers and their civilizations will never be completely told. A river is a friend one moment and a vicious enemy the next. Their story is never completed—is always changing—and with that change is the destiny of many people. Throughout the world, great peoples have risen, flourished, and died on the banks of rivers—great and small. This is so very true in the Southwest where, perhaps, a river is more cherished than in the rainy, moist climate.

The Gila River, much to most peoples' surprise, drains over half the state of Arizona and also extends into New Mexico and Old Mexico. The easternmost headwaters of the Gila are almost at the Continental Divide at longitude 107 40', just west of Chloride, New Mexico. The southernmost portion is the Santa Cruz headwaters at latitude 31 15', southeast of Nogales, Sonora, Mexico. The northernmost drainage is Chino Creek and its associate washes at latitude 35 40', south of the Grand Canyon. The Gila on the west enters the Colorado River at latitude 32 35' and longitude 114 30', north of Yuma, Arizona.

The lower Gila River, that is from its entrance into the Colorado River up to Gila Bend, drains an area which is largely a sandy waste, much of it covered with lava. The average elevation is less than a thousand feet, the mountains



rarely attaining a height of more than two thousand feet above the plain. Vegetation consists of cactus and palo verde on the mountains, mesquite and greasewood on the plains. Rainfall amounts to only a few inches a year, storms are of short duration and the water quickly lost; there are no springs and only occasional tanks, or rock basins. Almost the entire area south of the river is drained by Growler Wash.

The big bend in the Gila is caused by the irregular series of high ridges, buttes, and mesas of the Gila Bend¹ Mountains of western Maricopa County. Just east of the bend is the mouth of the Hassayampa River. A few miles farther on comes the divisions of the Aqua Fria, Salt, and Santa Cruz Rivers. The Aqua Fria, draining north of the Gila, is in more mountainous country than the Hassayampa. The Salt is the largest tributary of the Gila River and must be treated separately. Although the Santa Cruz River is, in reality, a dry wash most of the year, yet its drainage area, running northwest-southeast, extends into Old Mexico and plays an important part in the agriculture of that region. Considerably farther east is the valley of the San Pedro River, roughly parallel to the Santa Cruz River. Next to the Salt River, the San Pedro River, approximately one hundred and seventy miles in length, forms the most important tributary of the Gila. The river heads in Sonora, Old Mexico,

I. N. H. Darton, A Resume of Arizona Geology, p. 226.

flows northwest through portions of Cochise, Pinal, and Pima Counties, ultimately emptying into the Gila near Winkelman, Arizona. The elevation of the river averages 2200 feet. Even though this is a living stream, much of its course in dry season is underground. The orogeny which formed the block fault type of mountain in this area brought the Pliocene period here to a close.¹ San Simon Creek is the next important drainage system.

The Gila River forks near the interstate border. The southern fork, still known as the Gila, swings southeast into New Mexico and then north. The north fork, known as the San Francisco swings generally northward. The Blue drains the country west of the San Francisco and parallel to it.²

The area of southeastern Arizona belongs to the "Basin and Range" province, and is bordered on the north by great volcanic masses that throw a high rim about the southern part of the Colorado plateau. The Gila River is an important boundary line between plateau country to the north and the basin country to the south, cold winters prevailing northward, mild winters southward. The division is one of the most striking in the Southwest.

The Salt River, draining the country to the north of the Gila, runs through a more rugged region. The Estrella Mountains, which border the Salt for twenty-five miles southwest of Phoenix,

1. W. A. Duffen, Development of Human Culture of San Pedro, p. 18.
2. H. T. Getty, Cultures of the Upper Gila, p. 12.

have very steep canyons and peaks some 4500 feet high.¹ The Verde River, the largest tributary of the Salt, is about ninety miles long. It heads in the rough country near Bill Williams Mountain, and runs from there into the Big Chino Valley, where, in its meandering course it presents the appearance of nothing more than a large arroyo carrying water in snow or rain times. The Big Chino is a broad, fertile expanse of grassland. Below the valley it enters the mountains again and meanders through box canyons to enter the Verde. All important tributaries come from the east and the Mogollon Rim—the edge of the great Colorado plateau. The Verde carries much water in flood season, but the valley is really arid with an annual rainfall of ten inches. Natural vegetation is desert growth. Along the river bottom are grasslands, but the surrounding hills are very alkali. The Mogollon Rim here is around 7000 feet.²

The Sierra Ancha Mountains to the east of Tonto Creek are in reality a very high and rugged mesa—one of the most prominent topographic features in central Arizona. Aztec Peak is 7400 feet. To the Salt and Tonto Valleys, the Sierra Ancha present a very steep front. Cherry Creek and Canyon Creek have cut canyons four thousand feet deep along its eastern side.³ From the Cibique River east to the New Mexico-

1. N. H. Darton, op. cit., p. 227.

2. Earl Jackson, A Survey of Verde Drainage, p. 6.

3. N. H. Darton, op. cit., p. 239.

Arizona state line, the country is dominated by the extensive lava flows from the White Mountains. Many flows extend down the river valleys, and in outlying districts, there are many igneous peaks which are mostly plugs or stocks. Even from Cibique to Carrizo Creek are remnants of old lava fields which cap the mesas.¹ South of the Salt River is the great Natanes Plateau which extends through eastern Gila County and Graham County. It consists of a thick succession of lavas which came from outlets in the White Mountains.²

Northeast of where the White River and the Black River meet to form the Salt,³ is the most rugged of this Gila drainage area. There are such lofty peaks as Thomas (Baldy), Ord, and McKay in the White Mountains, all of which are around 10,000 feet high. The part these snow-clad peaks played in the lives of the prehistoric people is inestimable. Much of the country is heavily wooded now, indicating a good supply in prehistoric times. It is on the slopes of these mountains on the south side of the Mogollon Rim that the headwaters of the Salt and most of the Gila arise. The Blue and San Francisco Rivers have their headwaters on the eastern slope of Mount Thomas. Along the San Francisco, the bluffs are 4500 feet high. The lava flows extend to Morenci on the south and far into New Mexico on the east. The country is very rough

1. N. H. Darton, op. cit., p. 261.

2. Ibid. p. 242.

3. H. T. Getty, op. cit., p. 12.

with deep ravines and gorges amid high plateaus.¹

All of this Southwest region in general, is a high arid plateau, sloping away to the south and west from the Rocky Mountains. This description, however, gives no idea of the beauty found in the high pine forests or the hot dry deserts.

1. N. H. Darton, op. cit., p. 207.

CHAPTER II

CULTURES OF THE GILA RIVER AREA

The Lower Gila Area

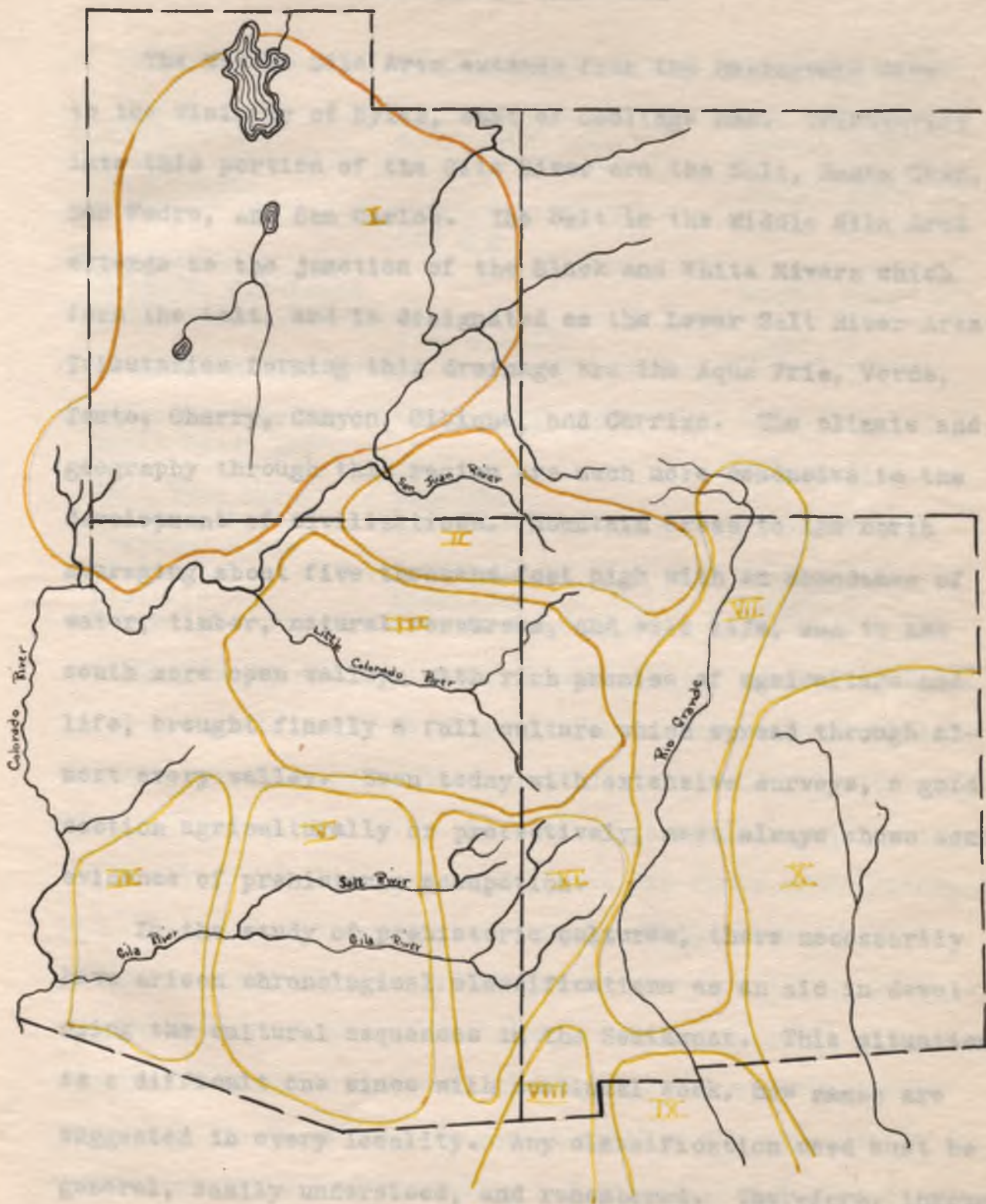
The Gila River Drainage has been conveniently and arbitrarily divided into three areas, in considering the prehistoric peoples whose civilization flourished here. These are the Lower Gila, Middle Gila, and Upper Gila Areas.

The Lower Gila is from the mouth of the Gila at its junction with the Colorado River to the mouth of the Hassayampa River. The geography and climate of this region make it seem entirely unsuitable for habitation—prehistoric or modern. The mountains are rather low with no forest growth, and mesquite and palo verde are the most common trees. The valleys are broad and low, of the sandy type in general, which support little vegetation except desert growths. Rainfall is in the violent summer showers which are more destructive than helpful for this type of land. Water sinks very rapidly to the underground streams and there are almost no springs and only a few rock tanks. Yet we find evidence of these early peoples throughout this area. Pottery, of course, is the most outstanding since it survives through many conditions. Because no extensive ruins have been found, most results come from surface sherds. This might indicate a route of travel instead of a settled area. Much plain ware in red or reddish brown has been found. Some coiled ware and a little red-on-buff is encountered through the eastern portion.¹ Extensive sherd sur-

1. Byron Cummings, Lectures at University of Arizona, 1935-7.

veys have been carried out by Gila Pueblo recently. Of all the sherds found, a very small percentage has been decorated and most of that was the red-on-buff of the Middle Gila Area. Three sites were found where sherds of Gila Polychrome made up from 5% to 15% of the total sherds. These were one site southwest of Gunsight Well (5%), one near the Eagle Mountains (12%), and one near Fort McDowell (15%).¹ These were most probably trade pieces since they are found in such small quantities, and distributed near the Lower-Middle Gila border, and in design and color are Middle Gila work. Of the total sherds for the whole area, a small percentage were decorated.

1. Gladwin, W. and H. S., The Western Range of the Red-on-buff, page 162.



The Southwest and Its Culture Areas

- | | | |
|---------------------|----------------|-------------------|
| I North Peripheral | IV Lower Gila | VIII Mimbres |
| II San Juan | V Middle Gila | IX Chihuahua |
| III Little Colorado | VI Upper Gila | X East Peripheral |
| | VII Rio Grande | |

The Middle Gila Area

The Middle Gila Area extends from the Hassayampa River to the vicinity of Bylas, east of Coolidge Dam. Tributaries into this portion of the Gila River are the Salt, Santa Cruz, San Pedro, and San Carlos. The Salt in the Middle Gila Area extends to the junction of the Black and White Rivers which form the Salt, and is designated as the Lower Salt River Area. Tributaries forming this drainage are the Aqua Fria, Verde, Tonto, Cherry, Canyon, Cibique, and Carrizo. The climate and geography through this region are much more conducive to the development of civilizations. Mountain areas to the north averaging about five thousand feet high with an abundance of water, timber, natural resources, and wild life, and to the south more open valleys with rich promise of agriculture and life, brought finally a full culture which spread through almost every valley. Even today with extensive surveys, a good section agriculturally or protectively, most always shows some evidence of prehistoric occupation.

In the study of prehistoric cultures, there necessarily have arisen chronological classifications as an aid in developing the cultural sequences in the Southwest. This situation is a difficult one since with continual work, new names are suggested in every locality. Any classification used must be general, easily understood, and remembered. Therefore, throughout this paper, the Cummings Classification will be used. The other classification is that of Pecos, New Mexico. A correlation

of the two systems with approximate dating is as follows:¹

Cummings		Pecos
Archaic Period	about 1500 B.C.	Basket Maker I
Nomads		
Cave People		Basket Maker II
	Beginning of Christ- ian Era	
Early Pueblo		
Circular Pit-house		Basket Maker III
Transitional Pit-house		
	A.D. 150-650	Pueblo I
Rectangular Pit-house		
Late Pueblo Period	650-Present time	
Small House Type		
	650-900	Pueblo II
Unit Type House	900-1200	
Rambling Pueblo	1200-1350	Pueblo III
Compound House		
Decadent	1350-1540	Pueblo IV
Historic	1540-1700	Pueblo V
Modern	1700-Present Time.	

When early man lost some of his nomadic habits and desired to settle down, he chose the one convenient thing near at hand, to which he would have to do little to make it habitable. This was the cave. What was more natural than to copy the familiar habits of an animal? At his first crude attempts at shelter other than the roof of the cave, he used branches, poles, or brush, leaning them against the cave wall. As an improvement, he began to use stones around his small shelter, and this evolved into a wall finally when he moved out into the open. In order to gain more height in his home and to keep warm more easily, an excavation a few inches to four feet deep

1. E. P. Clark, op. cit., p. 23.

was made. With a circular excavation, a pile of rock around the edge, and a pole and brush roof above, a good start was made toward permanent homes and villages in this Circular Pithouse Period. Most evidence so far of the Cave People has centered to the north in the San Juan Region around the "four corners". This region is full of caves, however, and there is more chance of preservation. In this more southerly area of the Gila, caves are far fewer. Whether there was a Cave Man here or not is hard to say. Nevertheless, we do find circular pithouses in the Gila¹ Mountains at McEwen Cave.

The Transitional Pithouse is well represented in the Middle Gila. Good examples are those of Martinez Hill Ruin, University Ruin, and Reddington Ruin.² The transitional pithouse shape is one in which the sides have been lengthened and straightened until it is midway between the circular pithouse and the rectangular pithouse. The most widespread is the rectangular. Almost every archeological site has a rectangular pithouse. In the Middle Gila there are examples at University Ruin, the ruin at 76 Ranch (northwest of Fort Grant), and the ruin at Orr Ranch (at Hayden Junction).

During these three stages of development, many advances were made. The method of firing pottery comes in the Circu-

1. Byron Cummings, Archeology Seminar, 1935-1936.
2. W. A. Duffen, op. cit., p. 73.

lar Pithouse Period. Prior to this, the people were not sedentary enough to develop pottery manufacture. These first pieces were formed from one lump of clay, pressed into shape and fired. In the Transitional Period, the art of coiling began and they were able to make much larger pieces and do much better work. In Architecture the methods of building improved until the rectangular pithouse was sometimes as large as twelve feet by twenty feet. Wall construction was understood so that now there was a compact, weather-proof piece of work extending from the upper edge of the pit to the roof. The roofs were made of three or more layers of material, grading from the basic center beam, through finer layers of poles and brush to a thick coating of mud. Little side rooms were made which were used to store food and materials. These were built either as one building standing by itself or with a number of rooms built next to each other.

In stone work, these pithouse people elaborated the number of forms and sizes. To the five or six basic forms of hammerstones, rubbing stones, knives, scrapers, spear and atlatl points, and pipes developed by early man, were added polishing stones, metates, manos, drills, axes and prayer stones. All pieces were worked down to a fine smooth surface. In the Gila Region, axes were made of diorite, a hard granite, and had grooves on three sides. The bottom was left

flat for hafting. These are often considered the best axes of the Southwest. Stone was also used in jewelry. Beads of slate, catlinite, and turquoise are found, and pendants of stone also. Pottery pieces and wood were used too.

In the Circular Pithouse Period comes high development of textiles. Crescent toed sandals of finest quality were made with different styles in weaving and color design. In some of the best there are twenty-four to thirty-six warp threads. The majority were made of yucca. Yucca was also used for weaving small apron-like garments and for belts, besides ropes, cords, etc. Heavier skirts were made of cedar bark. Blankets were made of feather and fur on a base of yucca cord. Baskets were woven of yucca for finer ones and bark for coarser ones.

Agriculture became agriculture in the Southwest when some early man decided he would be better off if he would sow seeds, help the plant grow, and stay there until time to gather the ripened seeds. In this way he became sedentary. The small eared type of corn was known to these people and slowly became better developed. As the culture advanced, wild plants were cultivated and herbs, squash, beans, and a great many more became the regular produce in the Early Pueblo Period. This was supplimented by the nuts, berries, and fruits that grew wild. With more cultivation the need for irrigation was realized and this led to the elaborate

systems found in the Lower Salt and Middle Gila.¹

In the north we find much evidence of a full ceremonial life.² It is logical then to assume much the same thing for the southern people, even though we don't find such things as the Kiva and its furnishings. There is evidence for this in various ways. There must have been a ceremonial life for a people when they bury with their dead, much of their material wealth. In the southern area where circumstances of a large population plus a generally hot climate forced the practice of cremation, the remains were put in jars with offerings, and buried. This custom gives archeologists in the Gila area some of their best pieces of pottery. This also limits our knowledge of the physical characteristics of the people to the comparatively few inhumations found. Pottery otherwise in a ruin is usually in the form of sherds from a rubbish heap. Then ever so often we find a burial accompanied by small skin bags of objects obviously of ceremonial nature. Numerous prayer stones, shining with the use of ages, are found. Bowls placed with burials are often "killed" by having a hole broken into the bottom. Also the highly developed symbolism of design on pottery must have had a meaning for the people, connected with their religious and ceremonial life.

1. Byron Cummings, Ancient Canals of the Casa Grande, p. 2.
2. Byron Cummings, Kivas of the San Juan Drainage, pp. 272-282.

The Upper Gila Area

The Upper Gila Area extends east of Bylas, Arizona to the Continental Divide in New Mexico. The Upper Salt extends east from the junction of the Black and White Rivers. Tributaries of the Gila are San Simon Creek, Eagle Creek, and the San Francisco River with the Blue. Tributaries of the Upper Salt beside the Black and White are the headwaters of these two rivers in the White Mountains. Climate and geography are somewhat more rugged in general than in the Lower and Middle Gila. The canyons are steep walled and don't often widen out into a valley large enough for extensive agriculture. During winter a good deal of this land is snow covered or is so cold as to limit the growing period to the summer months. The early people must have liked this vigorous climate, for again, as in the Lower Salt, we find evidence of them throughout the region. This district in many instances seems to have been a meeting place of cultures. It is bounded on all sides by other culture areas which traded extensively through the region. This is best shown by pottery. The unusual mixture of pottery types is shown at the Miller Ruin, seven miles west of Rodeo, New Mexico. The sherds found there represent Chupadero from the Rio Grande Area, Mimbres, Casas Grandes Polychrome from the Chihuahua Area, Early and Late Gila Polychrome, Red-on-Buff, Little Colorado Polychromes, and Little Colorado Black-on-Red.

1. H. T. Getty, op. cit., p. 43.

One would expect that under such conditions as these, it would be rather improbable that a distinctive type of polychrome could be developed within the area. Plain wares and two-color wares were made with great precision and come up to a high standard in prehistoric pottery but there was no need for a polychrome. There is, however, a definite Upper Gila development apparent in the pottery. One phase of this is the extremely fine corrugated ware. The other phase is the Tularosa Black-on-White. The Tularosa ware exists side by side with the polychromes from the surrounding areas.

General culture in the Upper Gila is very similar to that in the Middle Gila. Major differences were due to topography and the materials which they had to work with. Much more rock was used in wall construction. There was less need to develop an irrigation system with their agriculture. Gardens were placed fairly close to running water. Also, in this climate there was plenty of rain during the growing season, eliminating the need for irrigation.

CHAPTER III

EARLY AND LATE GILA POLYCHROMES

The Beginning of Pottery

Pottery of the prehistoric southwest illustrates a practical comprehension of the selection and preparation of clays and tempering material that, under their crude firing, would produce shapely waterproof vessels. Even more exact knowledge is made evident by the use of mineral paints in decoration, for many of these change color in firing.¹ The gem of the idea of making pottery must have slowly made its way into the mind of some individual who idly rolled a ball of clay between her hands and made a depression in it.

Progress in the art of ceramics was undoubtedly slow; many generations must have passed before it was discovered that the clay vessel could be fired and so made impervious to water. Hand molded vessels were crude in shape, but eventually the women found that the clay could be rolled into ropes which when coiled upon themselves and pressed tightly together, would form a vessel of symmetry and beauty. Through accident and experience, primitive women learned the type of material she must use to obtain certain desired results, and through the same trial-and-error method she learned the preparation of her materials. There were many chances of variation within the range of the possible material, and the differences in composition of clays coming from the various regions led to

1. F. M. Hawley, Chemistry in Prehistoric American Arts, p. 35.

the individuality of pottery characteristic of any single area. This regional difference in materials is one of the reasons why pottery may be used for--and is--an excellent culture index. Pottery also reflects rather faithfully in shape and decorations the localization of cultures and the changes which take place. Add to these facts the durability of pottery--under all conditions--more than any other culture element, and the importance of the ceramic art will be plain.

The state of Arizona may be divided roughly into three regions with regard to paste color. In northern Arizona, pastes were generally light in color, those of central Arizona more buff and red, and those of southern Arizona distinctly brown. Variations of each of the pottery types within these general districts show differences depending upon locality and period of development. In prehistoric days in the Southwest, the people fashioned their household articles after patterns handed down from generation to generation; in fact, so conservative were they that each of their different schools of art extended over a comparatively large area.

Again we turn north for evidences of early man. At Vandal Cave in the Lukachuka Mountains, pieces of that very earliest of unfired, cedar-bark tempered pottery¹ were found.²

1. Examples in the Arizona State Museum, Tucson, Arizona.

2. Emil W. Haury, Vandal Cave, p. 3.

At the same site were found crude attempts at firing pottery. This first ware was molded by hand from lumps of clay. Also the bases of some of the pieces were molded in baskets; imprints of the rim or of a few coils are occasionally found three or four inches from the base of the vessel.¹ In the Gila region was developed the "paddle and anvil" method² rather than the coil. In this the clay is shaped by holding a rounded stone inside the vessel and patting the outside with a wooden paddle. With continued manufacture, the forms became smoother and more symmetrical and beautiful in shape. Very soon after this came the desire to decorate these pieces. Earliest efforts were expressed by incised lines—usually by repetition. Soon came the use of color. Patterns were the simple forms repeated—dots and lines. Different individuals added their own ideas until narrow and broad lines made patterns. Then rectangles and triangles came, and finally the scrolls.

Black was the first color used. This was the simplest to get, for all they had to do was take the soot from their fires. They also learned that the juice from certain plants would make colors if boiled down to a thick liquid. This plus the use of minerals such as hematite for red and ochre for yellow gave the painter a wide range of color to use in his design.

-
1. F. M. Hawley, Prehistoric Pottery Pigments in the Southwest, p. 731.
 2. E. P. Clarke, op. cit., p. 48.

Black-on-White Ware

Tularosa

Black-on-White pottery is one of the earliest color combinations found in the Southwest. The white at first was more of a smudged, grayish color which became white with continued efforts. The first designs were the simple lines and dots but soon developed into many design elements. A fine exhibition of this gradual development may be seen at the Arizona State Museum, Tucson, Arizona.

In the Gila Area, black-on-white ware is distinctive of the Tularosa region of the Upper Gila. This Tularosa type dominated the field since no polychrome pottery purely of that region has been found. The polychromes found so far are obviously trade pieces from the surrounding culture areas. Tularosa pottery belongs almost entirely to the Late Pueblo¹ Period and very little early pottery has been found here.

The clay is of medium grade, the white slip is clear and has a polish. The black is a good permanent color. The design elements are relatively few but are combined in a striking manner. Favorites are balanced hatched and solid scrolls, balanced hatched and solid triangles, and stepped figures. There is very little other variation in pattern. Bowls and small globular ollas are most common shapes. A distinctive characteristic is the animal handle. The hatching is done in rather heavy lines with the outline of the same width as the

1. E. P. Clarke, op.cit., p. 46.



Roosevelt Black-on-White
Size: Diameter 6"; Depth 3"
Site: Roosevelt Lake District
Number 6653 in Arizona State Museum
Tucson, Arizona

Plate 1

hatching. The necks of ollas usually have an elaborate decorative band around them. The main design covers most of the vessel. The technique is good.

Although this type seems so specialized along some lines, that is what makes it distinctive in Southwestern pottery.

Roosevelt

The Roosevelt Black-on-White of the Middle Gila Area is very similar to Tularosa. This pottery went through the same stages of development as the other types, the earlier pieces showing fine lines and dots, and triangles followed by broad lines and bolder design combinations. The Tularosa pattern of balanced hatched and solid figures dominates but the Roosevelt developed certain individualities of its own. They rarely have the animal shaped handle; the design around the neck is more simple, usually confined to broad lines repeated; the body design is bordered above and below by definite lines. The paste and color are good but the polish usually not so high as the Tularosa.

Black-on-Red Ware

Black-on-Red Ware was developed very early following the Black-on-White. The designs closely following in their development, the course of the Black-on-White, pieces are often very similar. They are relatively rare, however, in the early period, becoming much more common in the later period when the Black-on-Red and Polychrome wares gradually become popular.

Upper Gila Black-on-Red

This ware in the Upper Gila is, in design and shape, nearly identical to the Tularosa Black-on-White. The bowls and ollas are most common shapes. They are often found as burial containers—the ollas containing the ashes and bones and the bowls serving as covers to the ollas. The designs are the balanced hatched and solid figures but the scroll is not commonly found.¹ Some bowls closely resemble the Little Colorado Ware to the north. The only difference being the duller orange-red in the Gila as contrasted with the deeper red and bright orange of the Little Colorado.²

Middle Gila Black-on-Red

This differs very much from the Upper Gila type. The red is much deeper and the design shows an entirely different conception. Only broad black lines are used, combined

1. Byron Cummings, Lectures at University of Arizona.

2. E. P. Clarke, op. cit., p. 47.



Middle Gila Black-on-Red
size: Diameter 11"; Depth 4½"
site: Gila Bank Ruin, San Carlos, Ariz.
Number 18360 in Arizona State Museum
Tucson, Arizona.

Plate 11

in triangular and stepped figures. Jars or small ollas are the forms found so far and these have been in the southern Middle Gila Area around Tucson. These were found at Martinez Hill Ruin¹ and University Ruin.² From the small numbers it is "perhaps to be inferred that this phase of pottery decoration did not last long, but was soon merged into the type of Late Gila Polychrome known as Tucson Polychrome".³

-
1. Norman Gabel, Martinez Hill Ruin, p. 43.
 2. University Ruin, p. 3.
 3. E. P. Clarke, op. cit., p. 55.

Early Gila Polychrome
Development

The combination of red, black, and white on one vessel seems to have been developed by the Middle Gila potters who made a Black-on-White and a Black-on-Red of their own. The same type of decoration was carried over from the Black-on-Red into Early Gila Polychrome. At Gila Bank Ruin near old San Carlos, bowls were found—one a Black-on-Red and one an Early Gila Polychrome—and the patterns on the two types of ware were almost identical. In the Upper Gila Black-on-Red, the scroll is not commonly found. This is reflected in the early polychrome both in bowls and ollas where designs are nearly all stepped and banded. One piece of pottery in the Hawley collection at Miami shows an early attempt at combining the two-color wares into a polychrome. This is a pitcher with a Black-on-Red body and a Black-on-White neck. While it is not a pleasing piece, it is an interesting result of the attempts which later produced Early Gila Polychrome.¹ In the survey work done by Gila Pueblo, eleven sites have been found where Early Gila Polychrome has been associated with Black-on² White and Black-on-Red vessels.

Characteristics

The clay used in Early Gila Polychrome is fine and hard. It

1. E. P. Clarke, op. cit., p. 54.

2. H. S. Gladwin, Some Southwestern Pottery Types, p. 4.



Early Gila Polychrome
Size: Diameter, $10\frac{3}{8}$; Depth, $4\frac{3}{4}$
Site: Orr Ruin, Orr Ranch, Arizona
Number 20016 in Arizona State Museum
Tucson, Arizona

Plate III

is reddish brown to gray in color, varying in texture from course porous ware to a better quality. In the polychrome, a close, compact, fine quality is the usual thing. The tempering materials consist of fine sand, course quartz particles, crushed shell, ground up potsherds, and mica.

The manufacture of this ware shows skill; love of good design balance in color, line, and space; and a love of their work. Many hours went into grinding clay and temper; mixing to a correct consistency; patiently building up and smoothing down; polishing before firing; and then care in applying the design. There is no indication of hurried, careless work in the beautiful pieces of Early Gila Polychrome found today.

The exterior of a bowl was painted red which, in the Upper Gila Area, has an orange tone to it, and in the Middle Gila Area, is a deeper, richer red. The interior was slipped a creamy white and the design painted in a good, solid black. These colors vary in shade in different areas where materials varied. The white sometimes is more grayish, due to either firing or poor color pigment.

Early Gila potters seemed to partial to medium sized bowls although small and large bowls and large ollas are found. In the ollas, the design was applied in bands around the body and neck leaving the bottom red and a small edge of red at the rim. They are rather globular with short and straight sided necks. Bowls are deep with incurving rims.

As has been said earlier in this paper, the Upper Gila potters kept close to the stepped or rectangular designs with little use of the scroll. In the Middle Gila Area, the scroll was combined with lined design in most pleasing and interesting arrangements. The design is very simple--kept down, evidently, to the minimum needed to express the artist's idea. The basic or primary division of the bowl was done in a number of ways. The design may be in a continuous band around the bowl leaving the center free; or the bowl may be divided in half with the design repeated twice covering the whole bowl; or the design may be irregular, arranged into four triangular elements covering the entire bowl; or the design may be arranged in four spaces built upon a simplified swastika, leaving a plain square in the center. Fine line areas were used very effectively in balancing large scrolls or heavy lines. The design, if not in parallel bands around the bowl, sweeps to the edges or to a narrow, encircling black line. The elements are strictly geometric--wavy lines, solid and hatched triangle, broad black lines, interlocking frets, narrow parallel lines, and stepped lines are the commonest elements.

In summary, it may be said that this ware is of excellent quality, showing splendid workmanship, good drawing, and good firing. The designs are simple, but the brushwork almost invariably is very good. In hardness, as well as in surface finish, the Early Ware is superior.



Early Gila Polychrome
Size: Diameter 15"; Depth 12"
Site: Gila Bank Ruin, San Carlos, Ariz.
Number 18345 in Arizona State Museum
Tucson, Arizona

Plate IV

Distribution

The center for Early Gila Polychrome seems near the border between the Middle and Upper Gila Areas. The best ware, in my belief, is found along the Gila River through the eastern Middle Region. Very excellent ware is found at the Orr Ranch ruin near near Hayden, Arizona. This is the pure Early Gila type. Good work was done at Kinishba Ruin also. It is fairly widespread but not so plentiful as the Late Gila Polychrome. The Early Ware is well represented in the Santa Cruz Valley at University Ruin¹ and at Martinez Hill Ruin.²

On the Lower Verde Drainage at Mercer Ruin, more Early Gila Polychrome is found than late. It has a gray instead of creamy white ground and the black is dull. A similar type is found in Tonto Basin. In some pieces the bowl was fired before the white was put on.³ Gila Polychrome is found on the Upper Verde but not very extensively. It is found associated with Black-on-Red and Tularosa Black-on-White.⁴

In the Upper Gila, Early Polychrome is not so extensive as the Late Polychrome.⁵ At 76 Ranch, northwest of Fort Grant, Early Polychrome is associated with Black-on-White in pithouses.⁶ The San Pedro Valley gives both Early and Late Polychrome. The southern frontier must be close to Mexico because of the

-
1. University Ruin, p. 3.
 2. Norman Gabel, Martinez Hill Ruin, p. 51.
 3. Earl Jackson, op. cit., p. 71.
 4. L. R. Caywood and E. H. Spicer, op. cit., p. 48.
 5. H. T. Getty, op. cit., p. 40.
 6. Byron Cummings, Lectures at University of Arizona.

large amount of the ware found even in sites in Chihuahua, Old
Mexico.¹

Influences

This ware often shows influences from the local areas where it was made. For instance, in the Middle Gila Region, it is shown in the more commonly used scrolls and circles. This is a Red-on-Buff characteristic developed in this area.² The division of bowls around the swastika is also a Red-on-Buff trait. Bowls done this way are very common and are found as far south as Fulton's Ranch near Dragoon Pass, Arizona.³ In the Verde Valley the poor workmanship shows in material, technique, and design.

Early Gila Polychrome does not seem to have had any significant influence on any one area. This type was not very widespread but had a compact distribution close to the Gila.

Approximate Dating

Early Gila Polychrome is so named for the following reasons: it is found almost entirely on the Gila River and its tributaries; by stratigraphic tests, Early Gila Polychrome has been shown to be below the Late Gila Polychrome

-
1. W. A. Duffen, op. cit., p. 74.
 2. C. A. Amsden, An Analysis of Hohokam Pottery Design, p. 1-52.
 3. C. Trischka, A Chapter in the History of Red-on-Buff Culture of Arizona, p. 432.

in the Upper Gila Area;¹ and in sites where only the Early has been found, it is usually associated with Black-on-Red² and Black-on-White.

Direct dating by means of the Tree Ring Method has not been possible in the Gila Area except in a few scattered sites. The woods used here--mesquite, cottonwood, and juniper--prohibit any dating so far. The ruins which have been dated are those in which pine or pinon was used. Some of these ruins had Early Gila Polychrome in them but the majority had the Late Ware. The ruins which have been dated and have had Gila Polychrome in them are:

Ruin	Pottery	Dates	Location
Kinishba	some Early much Late	1232 1238-1306	Upper Salt
Gila Pueblo	Late Poly.	1345-1385	Middle Gila
Canyon Creek Ruins	some Early much Late	1326-1348	Middle Gila

From this it will be seen that the Late type must have evolved somewhere around 1300 A. D., and since we place Early Gila Polychrome before the Late, it must be dated somewhere between 1250 and 1325 A. D. Its small distribution gives it a shorter time in my estimation.

1. E. P. Clarke, op. cit., p. 56.
 2. H. S. Gladwin, op. cit., p. 4.
 3. D. C. Mott, Progress of the Excavation at Kinishba, p. 1.
 4. Gordon Baldwin, Ring Record of the Great Drought (1276-1299) in Eastern Arizona, p. 11.
 5. E. W. Haury, Dates From Gila Pueblo, p. 3.
 6. E. W. Haury, Tree Rings--The Archeologist's Time-Piece, p. 106.

CHAPTER IV

LATE GILA POLYCHROME

Development

Late Gila Polychrome developed from the beautiful Early Gila Ware but with astounding changes. The same forms and basically the same designs and colors were used, but something had changed the artists' design qualities.

Characteristics

The Late Ware was made with the loss of the excellent brushwork and care in execution of the Early pieces. Design is no longer simple and beautiful but has all kinds of little elements added to it just to fill up space, it seems. Many of the designs are "large bold impressionistic patterns splashed on with haste and careless enthusiasm." This work often calls to mind the early Red-on-Buff work of the Hohokam people. As a whole there is the lack of unity in the designs which was so characteristic of the Early Ware.

Materials were not so carefully prepared and firing was not watched too well. The colors now are Black-on-White on the interior and an elaborate Black-on-White-on-Red on the exterior. Favorite forms are large deep bowls and large ollas. Small bowls and pitchers were made also.

The Late Gila Polychrome uses many life form elements both in design and in clay forms of pitchers. This influence seems

1. E. P. Clarke, op. cit., p. 56.



Late Gila Polychrome
Size: Diameter 6 $\frac{3}{4}$ " ; Depth 5 $\frac{1}{2}$ "
Site: Hill Top Ruin, Miami, Ariz
Number 19302 in Ariz. State Museum
Tucson, Arizona.

Plate V

to come from the late Red-on-Buff ware plus some mixture with the Chihuahua and possibly the Mimbres. A favorite seems to be the duck-shape. A small olla is made and a tail, two wings, and the head are added in modelled clay. This idea is particularly like the Chihuahua forms.

Common elements in use were: the bird wing; the curved or rectilinear scroll with the point ornamented with a saw-tooth edge or with dots pendent from the edge; notched lines; the stepped figure; the corn symbol; careless hatching of all kinds; cross-hatching; interlocking fret; wavy and zigzag lines; and the broad line with the opening for the exit of evil. Black is used in large masses and often over-balances the design.

Symbolism of design has always meant a great deal to the modern Indians in the Southwest. Their very life centered around water and its various forms and connections. Therefore these dominant patterns is basketry, pottery, clothing, etc. A comparison of the modern and prehistoric design elements show an almost identical conception. The basic patterns were combined into a design which could almost tell a story—or in the words of Nampeyo of Hano—a prayer. The parallel lines mean driving rain and are usually combined with a zigzag for lightning. Fine cross-hatching meant a gentle rain while heavy cross-hatched lines meant a heavy rain and wind. Small dots which are pendent to a triangle

or to a line mean a gentle, dropping rain. The triangle or rectangle meansthe cloud. The scroll is the symbol for water. The corm symbol, found on much of the Southwestern pottery, is a square with a dot in the center. To tell her story, the potter knew all these meanings and the different adaptations and combinations possible.

The basic division of the bowl is still about the same as in the Early Ware. The white paint is more os a dark cream and in some areas is actually gray. The black is still good and clear. The red slip varies greatly in shade and is not so well applied. In quite a number of ollas, the slip and paint around the neck has come off leaving just the rough clay. This has happened on the exterior of some of the large bowls. For some unknown reason, the cream wash of this Late Gila Ware has little crackles all over it.

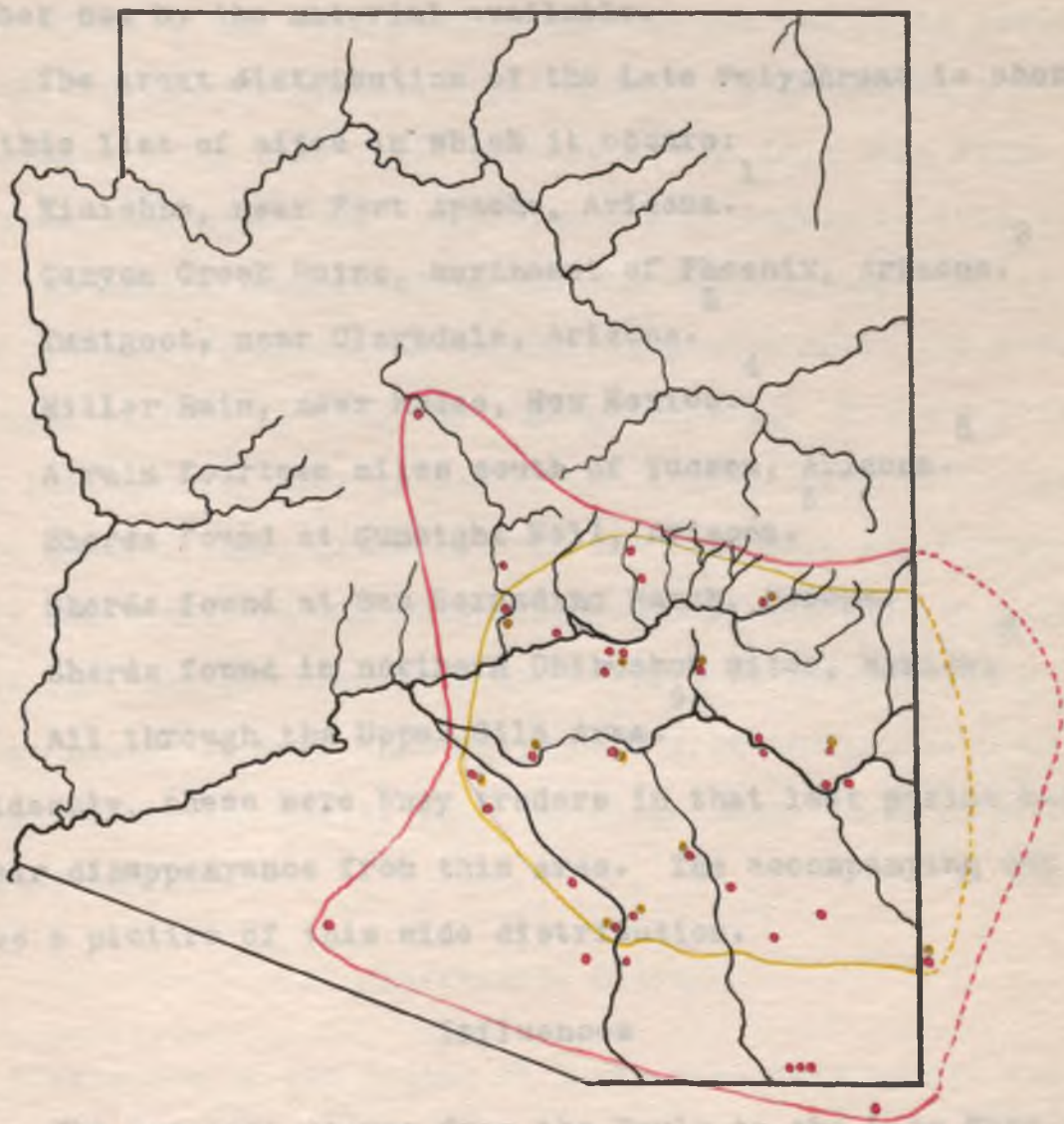
Distribution

Late Gila Polychrome is found throughout the Gila Area--widespread in the Upper and Middle Regions and almost as far into the Lower Region as Ajo, Arizona. Besides being found in practically all the ruins of any size at all, it is very profuse in each one usually. How it came to be liked to such a degree is hard to understand. To me, the majority of pieces are displeasing. One must remember, however, that this was one expression of color which could be easily exaggerated. Of

essentially, the other industries were limited to more or less
 water of the ...

The first distribution of the Late Gila Polychrome is shown
 by this list of sites which it characterizes:

- 1. Kinsley, near Fort Apache, Arizona.
- 2. Canyon Creek Ruins, northwest of Phoenix, Arizona.
- 3. Matigoot, near Chandler, Arizona.
- 4. Miller Basin, near ...
- 5. ...
- 6. ...
- 7. ...
- 8. ...
- 9. ...
- 10. ...
- 11. ...
- 12. ...
- 13. ...
- 14. ...
- 15. ...
- 16. ...
- 17. ...
- 18. ...
- 19. ...
- 20. ...
- 21. ...
- 22. ...
- 23. ...
- 24. ...
- 25. ...
- 26. ...
- 27. ...
- 28. ...
- 29. ...
- 30. ...
- 31. ...
- 32. ...
- 33. ...
- 34. ...
- 35. ...
- 36. ...
- 37. ...
- 38. ...
- 39. ...
- 40. ...
- 41. ...
- 42. ...
- 43. ...
- 44. ...
- 45. ...
- 46. ...
- 47. ...
- 48. ...
- 49. ...
- 50. ...
- 51. ...
- 52. ...
- 53. ...
- 54. ...
- 55. ...
- 56. ...
- 57. ...
- 58. ...
- 59. ...
- 60. ...
- 61. ...
- 62. ...
- 63. ...
- 64. ...
- 65. ...
- 66. ...
- 67. ...
- 68. ...
- 69. ...
- 70. ...
- 71. ...
- 72. ...
- 73. ...
- 74. ...
- 75. ...
- 76. ...
- 77. ...
- 78. ...
- 79. ...
- 80. ...
- 81. ...
- 82. ...
- 83. ...
- 84. ...
- 85. ...
- 86. ...
- 87. ...
- 88. ...
- 89. ...
- 90. ...
- 91. ...
- 92. ...
- 93. ...
- 94. ...
- 95. ...
- 96. ...
- 97. ...
- 98. ...
- 99. ...
- 100. ...



The greatest change from the Early to the Late Gila Polychrome is

1. Gordon Hald, **Distribution of Gila Polychrome**
 2. E. W. Shury, **Early Gila Polychrome....yellow**
 3. L. E. Cayton, **Late Gila Polychrome.....red** 49.
 4. K. I. Getty, *op. cit.*, p. 43.
 5. Byron Cummings, Personal interview.
 6. E. and H. S. Glavin, *op. cit.*, 1930., p. 100.
 7. Carl Bauer and Donald Brand, **Prelo Sites in Arizona**,
 Arizona, p. 442.
 8. S. A. Jaffon, *op. cit.*, p. 75.
 9. H. V. Getty, *op. cit.*, p. 51.

necessity, the other industries were limited to more or less somber hue by the material available.

The great distribution of the Late Polychrome is shown by this list of sites in which it occurs:

- 1
Kinishba, near Fort Apache, Arizona.
- 2
Canyon Creek Ruins, northeast of Phoenix, Arizona.
- 3
Tuzigoot, near Clarkdale, Arizona.
- 4
Miller Ruin, near Rodeo, New Mexico.
- 5
A ruin fourteen miles south of Tucson, Arizona.
- 6
Sherds found at Gunsight Well, Arizona.
- 7
Sherds found at San Bernadino Ranch, Sonora.
- 8
Sherds found in northern Chihuahua sites, Mexico.
- 9
All through the Upper Gila Area.

Evidently, these were busy traders in that last period before their disappearance from this area. The accompanying map will give a picture of this wide distribution.

Influences

The greatest change from the Early to the Late Ware is in

-
1. Gordon Baldwin, Kinishba, p. 48.
 2. E. W. Haury, op. cit., 1934, p. 78.
 3. L. R. Caywood and E. H. Spicer, op. cit., p. 49.
 4. H. T. Getty, op. cit., p. 43.
 5. Byron Cummings, Personal Interview.
 6. W. and H. S. Gladwin, op. cit., 1930., p. 162.
 7. Carl Sauer and Donald Brand, Pueblo Sites in Southeastern Arizona, p. 442.
 8. W. A. duffen, op. cit., p. 75.
 9. H. T. Getty, op. cit., p. 51.

the design and execution. The poor technique reminds one very often of the type done by the Hohokam people in their later Red-on-Buff pieces. They lack the preciseness of execution which same trait appears in the Late Gila Polychrome. The degeneracy in design can be hardly be laid to any one cause. Contributing factors would be the rise of the Red-on-Buff Ware, the "spurt" in growth after the great drought of 1276 to 1299, and the general age of the culture. The life form element in design and vessel form, as has been said before, comes probably from the Chihuahua and Red-on-Buff contacts. In the Late Polychrome pieces made at Kinishba, fine line designs are often used. This is probably from the great amount of Four Mile Polychrome from the Little Colorado Area just to the north, that was either made there or was¹ traded there.

Approximate Dating

In discussion of the dating of Early Gila Polychrome, the dates for Late Gila Polychrome were given (see page 29). The latest date so far for ruins where Late Gila Polychrome was made, is 1385 at Gila Pueblo. Since this is the date for the building or repair of the site, I believe it is safe to say that Late Gila Polychrome was made here up until around 1400 A. D.

1. Gordon Baldwin, op. cit., 1934, p. 48.

CHAPTER V

OTHER POLYCHROMES IN THE GILA AREA

Hohokam Polychromes

In the valley of the Santa Cruz River, Red-on-Buff was quite widespread. As could be expected, the potters developed little changes of their own. Two of these changes resulted in two types of polychrome theoretically, although they are really elaborated Red-on-Buff, and so far have been found in a rather restricted area.

At Martinez Hill Ruin southwest of Tucson, a few sherds have been found of a red-on-buff in which the red has been outlined with a narrow white line. The sherds found indicate ollas only. The design is purely geometric--cross-hatched triangles, basket weave pattern, and bands of solid triangles around the neck. There is no slip. The buff background is deeply tinged a reddish-brown and the red is a "hemitite" red.¹ There have been no whole pieces found yet.

The second type included in the general division of Hohokam Polychromes is more widespread. This is applied to bowls only. The exterior is the typical red-on-buff design. The bowl may be slipped or not. The exterior decoration is in groups of parallel lines bordered with dots, or with long, narrow sloping triangles, or else with fringed triangles and scrolls. The interior is black with the design in red. The black background is a carbon pigment, well-polished.² A var-

1. Sherds in Arizona State Museum, Tucson, Arizona.
2. Norman Gabel, op. cit., p. 49.

iant of this black is a smudged interior which is grayish instead of the deep black. This is unpolished. The design is usually a band of a repeated, geometrical element around the edge. The type has been found at Martinez Hill Ruin, the Tanque Verde Ruin,¹ University Ruin, and at a small site fourteen miles south of Tucson on the Nogales highway.² In the later development of the Hohokam types, some minor changes occurred. Geometric designs are used entirely to the exclusion of the life forms so profuse in the early Red-on-Buff. The ground color is usually darker and has a more reddish tinge. In form, bowls seemed the favorite although ollas and pitchers were made also. The technique is somewhat careless but the effect is pleasing.³

-
1. C. L. Fraps, Archeological Survey of Arizona, p. 17.
 2. Byron Cummings, Lectures at University of Arizona.
 3. E. P. Clarke, op. cit., p. 50.



Tucson Polychrome
Size: Diameter $7\frac{1}{8}$ "; Depth $6\frac{1}{2}$ "; Opening $4\frac{5}{8}$ "
Site: University Ruin, Tucson, Arizona
Number 5580 in Ariz. State Museum
Tucson, Arizona

Plate VI

Tucson Polychrome

Tucson Polychrome, although first found in the Santa Cruz Valley around Tucson, is appearing in other places in the Gila Area. This polychrome is a variation of Gila Polychrome. The colors are the red background with the black design outlined in white. Ollas only have been found. These are small but well-made.¹ The paste is fairly coarse and tempered with silicious material and mica.² Surfaces are smoothed. Both sides are slipped a deep red. The black design is in broad lines parallel or oblique to the rim of the piece. In many cases, the white is so fugitive that possibly some red-on-black pieces were originally polychrome. Without the white line, The polychrome is almost identical with the Red-on-Black Ware of the Middle Gila. A few pieces of this polychrome type have been found recently in the Upper Gila Area.³ There are some differences in design, however. In the Roosevelt Lake Area, a bowl was found with the interior done in black-on-red with the outline in a faint white. The design, however, had cross-hatching and small solid triangles. The Tucson type does not have such fine work on it, but in color and in technique, it was very similar to the Tucson Ware. In the Graham Mountains near Gila Valley, an olla was found decorated in the same manner. The design, color, and work were typically Tucson.⁴ The best

1. University Ruin, p. 4.

2. Norman Gabel, op, cit., p. 52.

3. Byron Cummings, Prehistoric Pottery in the Southwest, p. 6.

4. Byron Cummings, Lectures at University of Arizona.

examples of this ware have been found at University Ruin and Martinez Hill Ruin. At the former, it was favored in decorated wares next to Gila Polychrome.

Nogales Polychrome

Nogales Polychrome, as represented by a whole bowl and a few sherds found at Nogales, Arizona and now at the Arizona State Museum in Tucson, is a color mystery in prehistoric pottery. The design elements show Hohokam characteristics--the narrow, parallel lines in a meander pattern around the bowl, repeated squares cross-hatched, and a border of solid triangles. The form also is the slightly flaring rim of the Hohokam. The technique is below Red-on-Buff work but there is that same carefree appearance to the design. The colors are the outstanding things about these few pieces. The exterior is red. The interior is first slipped with a thick, cream-colored paint. Then the design is painted on in a red and purple. This same purple shade is similar to that of a seed bowl of a purple-on-brown found in the same excavation.¹ The purple is reddish and is peculiar to this area of Sonora, Mexico and around Nogales, Arizona. Before, however, anything else can be said about this out of the ordinary polychrome except to describe its characteristics and to suggest its similarities with other pieces, more work must be done in

1. E. P. Clarke, op. cit., p. 57.

that area, especially something more definite than surface surveys. Evidently a prehistoric site rests below the modern city of Nogales. I, for one, should like to know how far south into Altar Valley this purple paint is used.

Prescott Polychrome

The pottery of the Verde Region in general, falls below the Southwestern "level" of work. The clay is poor and carelessly prepared; temper is coarsely ground; the slips are muddy and poorly applied; colors are all somber—black, grays and browns; and designs show a lack of artistic sense and are not well-painted. The best thing about this pottery is the form—bowls and large ollas—but these could be better. One queer thing done here was painting the interior of ollas with designs. The designs are in fairly wide lines, running in jagged meanders around the vessel with no apparent sense or pattern to them.

Of the polychrome ware found in King's Ruin at the junction of Chino and Walnut Creeks, two bowls had black-on-gray interiors and brown-on-gray exteriors. Ollas had black-on-gray interiors and brown-on-brown exteriors.¹ This is the same type which F. M. Hawley has renamed Verde Polychrome.²

1. E. H. Spicer, The Prescott Black-on-Gray Culture, Its Nature and Relations, as Exemplified in King's Ruin, Arizona, p. 46.

2. F. M. Hawley, Field Manual of Prehistoric Pottery Types, p. 58.

Another polychrome has been found in the Verde Area which might be called Verde Polychrome. This has a black-on-white interior and a brown exterior.¹ This might be an attempt to copy true Gila Polychrome which came up the valley from the Middle Gila Area. The best pottery has been traded in from other areas--Gila Polychrome found at Mercer Ruin;² Four Mile Polychrome found at Bill Wingfield Ruin;³ and Red-on-Buff found at Tuzigoot Ruin.⁴

Miscellaneous Polychromes

Cibeque

This pottery has been found from Kinishba Ruin⁵ west to the Canyon Creek Ruins of the Upper Salt Drainage.⁶ The interior is a burnished black. The exterior is a brownish-gray with design in purplish-red outlined in white. Design elements are keys and stepped figures with a wide band at the rim. In form, the bowls have slightly incurving rims and the coils are not all smoothed out.

Fort Apache Polychrome

To date, only one bowl of this kind has been found but

-
1. Byron Cummings, Lectures at University of Arizona.
 2. Earl Jackson, op. cit., p. 70.
 3. Ibid., p. 66.
 4. L. R. Caywood and N. H. Spicer, Tuzigoot, p. 69.
 5. Pottery in the Arizona State Museum.
 6. E. W. Haury, op. cit., 1934, p. 72.

it is worth mentioning for its design. The interior of the large bowl is a beautiful Little Colorado Black-on-Red design---large scrolls, fine lines, and stepped figures. The exterior was originally a red which was overfired to an odd yellow-gray. The design is in black and white in a zone divided into panels around the rim. One panel is in fine line white design entirely. Another is in black outlined in white. Through the panels runs a white line which has black dots in it. This piece ¹ is very probably a single inspiration of a Kinishba potter and the basic idea was never copied by other workers.

Santa Cruz Polychrome

This type has been found only at the headwaters of the Santa Cruz by Carl Sauer and Donald Brand in their work on northern Mexico for the University of California. It is a coarse porous ware. The slip is a light gray. The design colors are red and purplish black. There is no polish. The patterns are intricate combinations of solid triangles.² None has been found on the Santa Cruz around Tucson.

A University Ruin Polychrome

At the University Ruin near Tucson, a rather oddly shaped

1. Pottery in Arizona State Museum, Tucson, Arizona.
2. F. M. Hawley, op. cit.; 1936, p. 60.

piece was found in the 1935-1936 work. The piece has been described as duck-shaped in that two sides are pulled out to points similar to duck tails. The ground color is a variegated red-buff and the design is in black outlined in white. The pattern is rather complicated in triangles and parallel lines but is well-done. This is the only piece found so far.¹

1. Pottery in the Arizona State Museum, Tucson, Arizona.



Casas Grandes Polychrome
size: Diameter 8"; Depth $7\frac{1}{4}$ "; Opening $4\frac{1}{2}$ "
site: Casas Grandes, Chihuahua, Mexico
In Arizona State Museum, Tucson, Ariz.

Plate VII

CHAPTER VI
INTRUSIVE POLYCHROMES

Since the eastern portion of the Gila Area is so centrally located in the Southwest, it is not surprising that polychromes of other areas are found throughout the area. These are evidently trade pieces. Some are quite numerous, others are rarer.

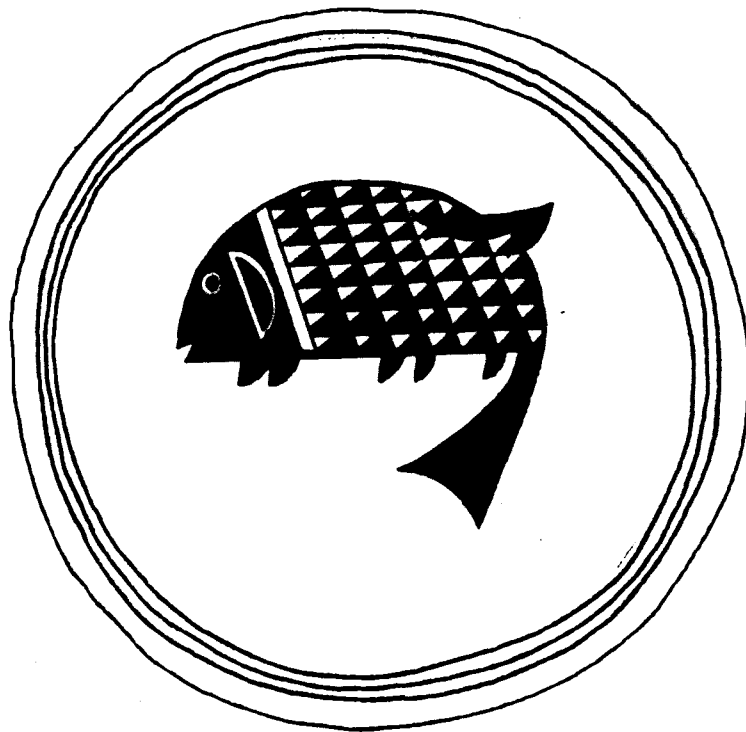
Casas Grandes Polychrome

This polychrome comes from Chihuahua, Mexico. It is a fine type, well-made, and very pleasing. Colors are a dark buff slip with a design done in dark brown and dark red. Design elements are longitudinal hatching, balanced stepped and triangular figures in brown and red, bold graceful scrolls, and the leaf element. Life form motives are often used which sets this area apart from the rest of the Southwest where life forms are rather rare except in the Mimbres Area of New Mexico. Most pieces are small ollas. Many are human, animal, or bird effigy forms.

Chihuahua Polychrome has been found at the Bayless Ruin¹ at Reddington, Arizona. Chihuahua wares are quite widespread in the Upper Gila Area, southeastern portion.² One whole piece of polychrome was found at Pesh-ba-gowah Ruin, Miami,

1. W. A. Duffen, op. cit., p. 77.

2. H. T. Getty, op. cit., p. 50.



Mimbres Ware
size: diameter 8"; Depth 4 1/2"
site: Mimbres Valley New Mexico
American Museum Of Natural
History, New York City.

Plate VIII

Arizona;¹ sherds are found at Fort Thomas on the Gila River²
and at Fulton Ranch at Dagoon Pass;³ and at Miller Ruin⁴
near Rodeo, New Mexico.

Mimbres Ware

Mimbres pottery is classed with the best of Southwest pottery. Very superior technique and an unusually great number of zoomorphic motives characterize this ware. The majority of pieces are black-on-white which, with too intense firing, may turn an odd reddish-brown on cream. Bowls are the common form and are thin walled, well-shaped. The design is in the center interior and the rim may be lined with parallel lines.

Polychrome is made by adding a cream-yellow to one or two places on the central design. This is not very common.

Mimbres ware has been found in Red-on-Buff sites in the Mule Mountains near Bisbee, Arizona;⁵ at Fulton Ranch;⁶ at Miller Ruin;⁷ and is widespread through the Upper Gila.⁸

El Paso Polychrome

The Rio Grande is another where the potters developed

-
1. Byron Cummings, Personal Interview.
 2. E. B. Sayles, Some Southwestern Pottery Types, p. 35.
 3. Byron Cummings, Personal Interview.
 4. H. T. Getty, op. cit., p. 43.
 5. Sauer, and Donald Brand, op. cit., p. 420.
 6. Byron Cummings, Lectures at University of Arizona.
 7. H. T. Getty, op. cit., p. 43.
 8. Ibid. p. 58.



Four Mile Polychrome
Size: Diameter $6\frac{5}{8}$; Depth $3\frac{1}{8}$
Site: Banning Wash Ruin, Cherry Creek, Ariz.
Number 19449 in Ariz. State Museum
Tucson, Arizona.

many kinds of pottery but their's was poor in decorated wares. The plain types are better. El Paso Polychrome is a black and red on orange. The technique and design are poor. The outstanding characteristic is the black glaze paint. This has much lead in it which makes it glittery and thick.

Sherds of El Paso Polychrome were found at Gila Pueblo,¹ Globe, Arizona and in a cliff dwelling of the Sierra Ancha;² and some sherds at Miller Ruin.

Old Hopi Polychrome

This beautiful ware has the rich "Hopi" cream background with the design in dark brown and deep red. Forms are mostly medium sized bowls. Design is in the graceful, sweeping line and space with beautiful balance despite seeming disregard for equalizing by halves or fourths. Very much Old Hopi has been found at Kinishba Ruin, near Fort Apache,³ and seems widespread westward to the Verde Drainage.⁴

Four Mile Polychrome

This Polychrome from the Little Colorado Area is distinctive in design, The interior is black and white on red.

1. E. W. Haury, op. cit., 1934, p. 122.

2. H. T. Getty, op. cit., p. 43.

3. Gordon Baldwin, op. cit., 1934, p. 48.

4. Byron Cummings, Archeology Field Trip, April, 1937.



**Distribution of Four Mile Polychrome
as mapped by Gila Pueblo.**
Yellow: sites where Four Mile is dominant.
Red: sites showing diffusion of Four Mile.

1. E. W. Peury, *op. cit.*, 1934, p. 150.
 2. Gordon Baldwin, *op. cit.*, 1934, p. 43.
 3. S. J. Kelly, *op. cit.*, p. 42.
 4. Gordon Baldwin, *op. cit.*, 1934, p. 40.
 5. S. H. Selser, *op. cit.*, p. 58.

The black is in broad lines outlined in white. The exterior is a continuous white line design banded in black. The interior design is a broad, sweeping, one-unit mass. The exterior design is in a white fine-line motif, repeated in a band.

The distribution of Four Mile is widespread as is shown on the accompanying map. It is the dominant type in many of the Sierra Ancha Ruins.¹ At Kinishba Ruin, this type is the second most common polychrome and shows its influence in the appearance of the fine-lined white exterior design on a distinctly Gila Polychrome piece.² Four Mile is also found at Miller Ruin.³

Pinedale Polychrome

This is another Little Colorado Polychrome. The interior is black-on-red. The design is bold and at times, is in asymmetric patterns in which a large scroll dominates. The red is red-orange. The exterior is a black design outlined in white. The design is a single motif placed at the four sides of the bowl, or is framed by four panels.

This polychrome is not so widespread but is found in the Upper Gila and Upper Salt. It appears at Kinishba Ruin;⁴ and a little was found in the Verde Drainage.⁵

-
1. E. W. Haury, op. cit., 1934. p. 130.
 2. Gordon Baldwin, op. cit., 1934, p. 63.
 3. H. T. Getty, op. cit., p. 43.
 4. Gordon Baldwin, op. cit., 1934, p. 65.
 5. E. H. Spicer, op. cit., p. 69.

Bidahochi and Winslow Polychrome

In the Upper Verde Drainage, there are several types of intrusive polychromes. Two of these are the Bidahochi and Winslow Wares.¹ These are found in such small quantities, however, and are somewhat different but hard to distinguish apart, that more research must be given them before they are considered permanent classifications. They are of the Little Colorado Area.

1. L. R. Caywood and E. H. Spicer, op. cit., p. 69.

CHAPTER VII

CONCLUSION

In this brief study of a large river, its people and their material culture, my aim was to pull this great region together to show the related qualities of so widespread a population through the study of their pottery. Polychrome wares seemed to be the highest expression in their ceramic art and was one which rather faithfully brings to us a concrete idea as they made it—as they set it down.

Through this study of pottery, a little insight has been gained into the everyday life of the prehistoric people. The industry and patience that it took on the part of the potter who, at the same time, must carry on her everyday duties in her home, were endless. The specially beautiful pieces must have been well cared for and then finally were used for the cremation urn of someone near to them. There must have been a belief in an afterlife when in the burial were included offerings—their material wealth. And in those days of travel by foot, a piece of pottery must have changed hands a good many times before it ended its days in a ruin waiting for an archeologist to find it some two hundred miles and seven hundred years from its home.

The great differences between the Early and the Late Gila Polychromes show, I believe, the effects of the great drought of twenty-five long years. Something sharp and de-

cided had to happen. Perhaps in that bold, careless, full style of the Late Ware, they were covering the stress of so long a time.

The relationship of Gila Polychromes to the other types of pottery in the Southwest surrounding it is shown clearly I believe. The mixtures of peoples and the trade which they carried on, both served to bring those characteristics which give us our Index to the Prehistoric Cultures.

BIBLIOGRAPHY

Amsden, Charles Avery

- 1936.--An Analysis of Hohokam Pottery Design. The Medallion
Number XXIII, Gila Pueblo, Globe, Arizona.

Baldwin, Gordon C.

- 1934.--Kinishba. University of Arizona Thesis.
1935.--Dates from Kinishba Pueblo. Tree Ring Bulletin, V. I,
a
No. 4, Flagstaff, Arizona.
1935.--Ring Record of the Great Drought (1276-1299) in East-
b
ern Arizona, Tree Ring Bulletin, V. II, No. 2.

Caywood, L. R. and Spicer, E. H.

- 1935.--Tuzigoot; the Excavation and Repair of a Ruin on the
Verde River near Clarkedale, Arizona,

Clarke, Eleanor Parker

- 1935.--Designs on the Prehistoric Pottery of Arizona, Univer-
sity of Arizona Bulletin, V. 6, No. 4, Tucson, Arizona.

Cummings, Byron

- 1915.--Kivas of the San Juan Drainage, American Anthropologist
n.s., V. 17, No. 2.
1926.--Ancient Canals of the Casa Grande, Progressive Arizona,
November, 1926.
1934.--Lectures in Archeology, University of Arizona, Tucson.
to 1937.
1935.--Prehistoric Pottery in the Southwest, The Kiva, V. 1,
No. 2, Tucson, Arizona.

Darton, N. H.

- 1925.--A Resume of Arizona Geology, Bulletin 119, Tucson, Ariz.

Duffen, W. A.

1936.--The Developmant of Human Culture in the San Pedro Valley, Arizona, University of Arizona Thesis.

Fraps, Clara Lee

1928.--Archeological Survey of Arizona, University of Arizona Thesis.

Gabel, Norman

1932.--Martinez Hill Ruin, University of Arizona Thesis.

Getty, H. T.

1932.--Cultures of the Upper Gila, University of Arizona Thesis.

Gladwin, Winifred and Harold S.

1930.--The Western Range of the Red-on-Buff Culture, The Medallion, Number V, Gila Pueblo, Globe, Arizona.

1935.--The Eastern Range of the Red-on-Buff Culture, The Medallion, Number XVI, Gila Pueblo, Globe, Arizona.

Gladwin, Harold S.

1930.--Some Southwestern Pottery Types, Series I, The Medallion, Globe, Arizona.

Goddard, P. E.

1927.--Indians of the Southwest, American Museum of Natural History Handbook Series No. 2, New York City.

Hanna, Muriel

1931.--An Archeological Review of Middle Gila Culture, University of Arizona Thesis.

Haury, Emil W.

- 1932.--Roosevelt :9:6---A Hohokam Site of the Colonial Period, The Medallion, Number XI, Globe, Arizona.
- 1934.--The Cliff Dwellings of the Sierra Ancha, The Medallion, Number XIV, Gila Pueblo, Globe, Arizona.
- 1935.--Dates From Gila Pueblo, Tree Ring Bulletin, V.2,
a No. 1, Flagstaff, Arizona.
- 1935.--Tree Rings--The Archeologist's Time-Piece, Reprint
b from American Antiquity, V. 1, No. 2.
- 1936.--Some Southwestern Pottery Types, Series IV, The
a Medallion, Number XIX, Gila Pueblo, Globe, Arizona.
- 1936.--Vandal Cave, The Kiva, V. 1, No. 6. Tucson, Arizona.

Hawley, Florence M.

- 1929.--Prehistoric Pottery Pigments in the Southwest,
American Anthropologist, V. 31, No. 4, Oct, 1929.
- 1931.--Chemistry in the Prehistoric American Arts, Journal
of Chemistry Education, V. 8, No. 1.
- 1936.--Field Manuel of Prehistoric Pottery Types, University
of New Mexico Bulletin, V. 1, No. 4.

Hewett, Edgar L.

- 1930.--Ancient Life in American Southwest, Bobs-Merrill Co.

Jackson, Earl

- 1933.--A Survey of the Verde Drainage, University of Arizona
Thesis.

Mott, Dorothy Challis

1936.--Progress in the Excavation of Kinishba, The Kiva,
V. 2, NO. 1, Tucson, Arizona.

Sauer, Carl and Brand, Donald

1930.--Pueblo Sites in Southeastern Arizona, University of
California Publications in Geography, V. 3, No. 1,
Berkeley, California.

Sayles, E. B.

1936.--Some Southwestern Pottery Types, The Medallion,
Number XXI, Gila Pueblo, Globe, Arizona.

Spicer, E. H.

1933.--The Prescott Black-on-Grey Culture, Its Nature and
Relations, as Exemplified in King's Ruin, Arizona.
University of Arizona Thesis.

Tanner, Clara Lee

1935.--Tanque Verde Ruins, The Kiva, V. 1, No. 4, Tucson,
Arizona.

Trischa, Carl

1933.--Hohokam: A Chapter in the History of Red-on-Buff
Culture of Arizona, The Scientific Monthly, V. 57.

University Ruins

1936.-- In The Kiva, V. 1, No. 8, Tucson, Arizona.

Woodward, Arthur

1931.--The Grewe Site, Los Angeles Museum of History, Science
and Art, Occasional Pappers, No. 1, Los Angeles, Calif.