best guide to the identification of the types. Amplified descriptions of one or more of the types exist in the reports of several excavations, but there is still much to learn about many local varieties. An up-to-date compendium of Rio Grande Glazes would be welcomed. The Eighth Ceramic Seminar, held at the Museum of New Mexico in 1966, was devoted to the subject, and although agreement was reached on some of the problems, the results have not yet been published. The extensive salvage excavations carried out by the Museum in the Cochití Reservoir area will, when published, add much information.

The 89 complete, nearly complete, or restorable pots of glaze-paint ware and late plain red ware, along with over 30,000 sherds from Mound 7, represent the entire range of glazes. At the start of the analysis there was some reason to hope that more complete descriptions of some of the types could be written, and that some local varieties could be defined. The outcome was less fruitful than expected. Separation into the six broad temporal categories was relatively simple, and within those, some distinct varieties were recognized, but since these varieties were traded into Las Humanas from various sources, some unknown, I can do little more than define the problem—or perhaps raise new questions.

The major groups, Glazes A through F, are recognized on the basis of vessel shape, primarily rim form, and to a lesser degree, on the character of the glaze and the combinations of colors. Although it is often possible to distinguish a large body sherd of Glaze F by paint alone, and one can usually assign a piece from below the rim to still larger groupings such as to Glaze AB or to CD, in order to retain some significance to relative numbers of types, only rim sherds of the glaze wares listed in Table 11 were assigned type names. This brought the size of the sample down to less than 6,000 sherds.

Glaze A 1313 – 1500+

The first intentional and consistent use of a mineral paint which vitrified on firing was applied to a red pottery, St. Johns Polychrome, made on the upper Little Colorado River of eastern Arizona. In the earlier years of its production, it was decorated with a matte paint, but near the end, at about1275, a black glaze-paint was invented (Haury and Hargrave, 1931). St. Johns bowls bore an intricate, deep-banded design consisting of opposed solid and cross-hachured elements in the Tularosa style, which covered all but a small area at the bottom of the interior. Below the rim on the outside was a simple, open, broad-line decoration in chalky white paint.

In the Zuñi area, stemming from St. Johns and appearing about the time of the demise of that type, was Heshotauthla Polyhrome. This was always painted with black glaze in the same design style as St. Johns, but it differed from the earlier pottery mainly in the exterior white design, which was painted with narrower lines and in a more intricate panel. The white paint was thinner, grayer, and adhered better. The interior layout was usually a little more open and covered less of the available space (Woodbury and Woodbury, 1966). Both of these western types were widely exported to the east, and it is Heshotauthla that is credited with stimulating the manufacture of the first oxydized, glaze-painted pottery on the Rio Grande (Mera, 1935; Shepard, 1936).

Glaze A sherds made up 34 percent of all typed glazes in Mound 7. The high ratio is due to the fact that it was made for a longer period than any of the other glazes. It was the only glaze found in the lower fill of the cisterns, and along with a few Glaze B sherds, it made up 89 percent of the glazes in the lower strata of Test Trench 1. In the Middle Phase trash of Stratum B in Kiva C Plaza, it was still 65 percent. In the trash that filled Kiva N, deposited after A.D. 1465 but probably not before A.D. 1500, Glazes A and B were still 49 percent of all identified glazes. Kiva M was filled in the 1600's, but the ubiquitous early glazes were still 11 percent, even though they probably had not been made for 200 years. Such a mixture is inevitable at a site built in, around, and next to large trash deposits. Similarly, the fill of rooms built in the late 1500's often contained from a 25 to 50 percent Glaze A sherds—the result of the builders using the nearby trash heap for earth to cover the roof.

Los Padillas Glaze-polychrome:

In 1933, H. P. Mera described a subtype, or variation, of, Agua Fria Glaze-red, separable only by a thin, white line decoration on the exterior. He called it Arenal Glaze-polychrome and derived it from a Little colorado ancestry. Later (1935), he expanded the description to include *broad-line* white decoration, as well as thin line, and suggested the name Los Padillas Glaze-polychrome to cover the several minor varieties. He believed the type to be transitional from the western types to the slightly later development of black-on-red duochrome on the Rio Grande. It was the consensus of the 1966 Eighth Ceramic Seminar that the name Arenal should be dropped and that Los Padillas should be considered to be an eastern variety of Heshotauthla Polychrome.

The relationship to Heshotauthla is obvious, and the transition to Agua Fria is substantiated by the figures in Table 1 where Glaze A and early western types are compared by number and percentages. Sherds from the Early Phase proveniences, where nothing later than Glaze B was found, are compared with the total numbers of the same types from the entire excavation. A Table 17 shows, Los Padillas was 15 percent of those sherds from the early sources, but only 7 percent of *all* early sherds. It is interesting to note that sherds of all western types drop from 27 percent in the uncontaminated early proveniences to less than 9 percent of all contemporary early red ware from the total excavation.

Table 17.
Glaze A and contemporary western red ware sherds from undefiled Early Phase proveniences as opposed to the entire mound.

Type	Unmixed early No.	%	Total Mound No.	
St. Johns Polychrome	2	2	13	0
Pinedale Polychrome	1	1	1	
Heshotauthla Polychrome	15	18	181	
Kwakina Polychrome	1	1	11	(
Unidentified White Mt. redware	4	5	4	
Los Padillas G/p.	13	15	173	
Agua Fria G/r.	41	48	1,519	
Cieneguilla G/r. & G/y.			206	
San Clemente G/p.	6	7	221	
Pottery Mound G/p.			22	
Largo G/r., G/y. & G/p.	2	2	109	
Totals	85	99	2,460	

A similar progression, from better stratigraphy, was seen at Pindi Pueblo near Santa Fe, where Heshotauthla gradually replaced St. Johns in the trade ware, to be eventually replaced by Los Padillas and Agua Fria (Stubbs and Stallings, 1953). That the transition may have been rapid is suggested by the fact that true Heshotauthla is somewhat more numerous in the Mound 7 sherd counts than the Los Padillas variety.

The simple banded exterior design in fine-line white of Heshotauthla is seen on about half of the 173 Los Padillas sherds from Mound 7. When it occurs in this style the two types cannot be distinguished with certainty without inspection of the paste. Another variation on this theme, seen only on Los Padillas, consists of thin black lines on the exterior in simple continuous lines or zigzags, which are outlined with narrow white lines. Somewhat less common is a combination of broad black and white lines, which rather than banded, are separate unattached elements of concentric circles, short parallel bars, or a series of open chevrons.

The single complete bowl of Los Padillas was in this style. A crude meandering black line on the outside under the rim is bordered in two places, on opposite sides of the bowl, with short bars of white. If the bowl had not been restored, most of its sherds would have been classified as Agua Fria Glaze-red—an error that must have happened numerous times. Los Padillas is actually no more Heshotauthla with a different paste than it is Agua Fria with some white paint.

Seven percent of the sherds that I classified as Los Padillas occurred in a previously undescribed variation—the black glaze elements on bowl interiors were delicately outlined with fine matte white lines in the manner of Pinedale Polychrome. The exteriors of these specimens are seen as unpainted, as decorated with simple black bars only, or with either the broad or narrow white line variations.

There was only one Los Padillas jar sherd. On this, an isolated black "X" was painted just below the rim. From both sides of it radiated four narrow white lines that presumably encircled the neck.

Temper analysis revealed that very little Los Padillas was made in the Salinas district; Las Humanas and Abó producing 1 and 2 percent respectively. Fourteen percent contained the red-brown scoria typical of the Los Lunas-to-Puerco River country, but 75 percent contained crushed sherds. The latter were not the cream to pink pastes of Cíbola, and although they cannot be positively pinpointed, they are probably from the Albuquerque area which is known to have produced sherd-tempered pottery during this period (Shepard, 1942).

Agua Fria Glaze-red:

Agua Fria was named and amply described by Kidder (1936; Kidder and Kidder, 1917) who estimated its appearance at Pecos at about A.D. 1350. Mera (1940b), however, suggested that it got its foothold on the Rio Grande in the southern part of its range somewhat earlier. The Eighth Ceramic Seminar suggested a date of about A.D. 1315 based on the recovery of the type from Las Madres, an early component of Pueblo Galisteo (Dutton, 1966).

With 1,519 rim sherds (and six restorable pots), Agua Fria was the most abundant of all the glaze types. Only 8 percent were round-bottomed jars with moderately wide mouths and high, perpendicular necks with unflared rims (fig. 120). Bowls were hemispherical with simple, slightly incurving, rounded or flattened rims. A short, sharply flared rim, also seen on St. Johns and Heshotauthla, occurred on 3 percent of the sherds. Agua Fri bowls are quite uniform in size. Height is approximately one-thirc the width, which ranges from 21 to 30 cm. Thickness of the paste is relatively uniform from one part of the bowl to the other, ranging from 0.4 to 0.7 cm. and averaging 5.3 cm. The wall thickness of jars averages slightly less. There is remarkable rigidity in form. Although the evidence of sherds is tenuous, there seems to be little variation in either shape or size. No exotic shapes were seen, and but one miniature—a small-mouthed bottle 0.8 cm. high with paired horizontal handles. Probably an heirloom piece, it was buried with the ashes of a cremation.

In the firing, Agua Fria clay is oxydized to a pale orange or pink through red to a light brown color. Usually the color is unchanged through the wall, but often only the surfaces are oxydized, and the interior is carbonized from light gray to black. Small fire clouds on the exteriors are more common than on the parent western types. Bowls are generally slipped, inside and out, with a deep red, and jars are usually slipped on the exterior and inside the rim and neck—often to cover the upper one-third to one-half of the inside of the vessel. Surfaces are well scraped and polished, in marked contrast to the contemporary Chupadero Black-on-white.

The temper in Agua Fria Glaze-red from Mound 7 indicated that it was traded from several different sources. Three percent contained biotite felsite identical to that used in Corona Plain and Tabirá Black-on-white—evidence that some local potter was using the new technique. A third of the sherds inspected by Warren contained crushed sherds in various clays, indicating several unknown sources, but these too were probably from the middle Rio Grande Valley. Vesicular basalt, like that found in

GROUP	TYPE	EST. DATE	BOWLS	JARS
A	Los Padillas G/p	1300		
	Aqua Fria G/r	1315		
	San Clemente G/p	1385		
	Pottery Mound G/p	1400-1490		
	Clenequillo G/y/p	1400		
B	Largo G/y,r/p	1425		
	Medio G/p	1425		
C	Espinoso G/p	1450		
D	San Lázaro G/p	1490		
E	Puaray G/p	1515		
	Pecos G/p	1515		
F	Kotyiti' G/r/p	1600		
	Jornada G/r/p	1600		

120. Rim types: Rio Grande Glaze ware.

sherds from Pottery Mound, was used in 33 percent of the pottery. The most important trade contact during this period was apparently with the lower Rio Puerco and nearby villages on the Rio Grande. Four percent of the sherds contained the syenite temper typical of Abó pottery. The new red pottery that was well established in the valley was apparently just beginning to be manufactured in the area behind the mountains. Quarai's hornblende-gneiss occurred in none.

The glaze-paint is usually an intense black, varying from a thin matte with small streaks of vitrification to a shiny reflective glaze. On the majority of specimens, the glaze was imperfect and is broken into tiny cratered bubbles, which trapped mineral sediments, giving the paint a grayish hue. The line work is neat and even.

The design style employed on the Agua Fria from Gran Quivira is no different from that illustrated by Kidder (1936) and Lambert (1954), and except to make some generalizations, there is no need to repeat their excellent descriptions. There is a definite departure from the Tularosa style of interlocked scrolls and opposed hachured and solid elements that dominated the White Mountain Red wares. Typically, the layout on Agua Fria is a narrow banded panel below the rim composed of series of solid triangles and rectangles used in a simple, rather open pattern. As opposed to St. Johns Polychrome, a much larger area of the bottom of a bowl is left unpainted. Some squiggle hachure is used, but no straight-line hachure. A common element is a long triangle which may extend from a fifth to a third of the circumference of the bowl, and which merges with a single line to complete the circle. In this, and in the use of a series of narrow, parallel lines that are sometimes bordered by a row of pendant dots, there is a resemblance to Lincoln Black-on-red.

Lincoln was made in an area extending from New Mexico's White Mountains, across the northern Tularosa Basin and the northern half of the Jornada del Muerto. It was present in that area for some time before Los Padillas was made, but it died out, or merged into the new type, shortly after the introduction of the latter (Mera and Stallings, 1931). The period of merging occurred shortly before the abandonment by the sedentary agriculturalists of the region in which it was prevalent (Lehmer, 1948). Migrants from the Jornada, with a red pottery tradition, may have moved northwestward of the region to the river valley and adapted the glaze-paint technique of the abundantly imported Heshotauthla to their own ceramics. Kidder (1936), who noted the discontinuity of design tradition from St. Johns to Agua Fria, pointed out similarities between Bandelier Black-on-gray (Biscuit B) and Glaze A. Both these New Mexico types resemble one another in design more than either resembles St. Johns. Both the Biscuit wares, however, are more complex in the combination of the individual elements of design and use a totally different layout. Abiquiu Black-on-gray (Biscuit A) was probably not invented until nearly 75 years after Agua Fria appeared in the Rio Puerco-Los Lunas area, and Bandelier was another generation later.

It has been suggested that Agua Fria was introduced at about A.D. 1315 (with perhaps Los Padillas 15 years earlier). It is difficult to estimate an end date. It is presumed that the invention of a new form signals the end of the earlier one—and at Pecos, Agua Fria was replaced by Largo Glaze-yellow (Glaze B) at about A.D. 1450 (Kidder, 1936; p. 610). Glaze B was rare at Gran Quivira and even scarcer at Pottery Mound (Voll, 1961)—the presumed source of much of our early period trade ware—although both Glaze B and C appeared as trade pottery at Pottery Mound. Some Glaze C was made in the south, however, as most of it in Mound 7 contains typical Abó temper (Warren, 1980). Voll estimated that Glaze A may have been made at Pottery Mound until 1490—the date suggested by Mera (1940b) as the beginning of Glaze D. Probably Agua Fria continued to be produced in some of the southern villages until the middle glazes took over, sometime between A.D. 1450 and 1490.

San Clemente Glaze-polychrome:

San Clemente Glaze-polychrome is essentially Agua Fria to which a light colored slip has been added. The slip occurs in two colors: one ranges from chalk white to pale yellow; the other is buff to orange. The light slip is applied to bowl interiors as a band to the base of the decorated area or to cover the entire inside surface. On jars, the slip underlies the decorated area between the neck and the shoulder, or occasionally, in two separated bands just above the shoulder and on the neck.

The type, named by Mera (1933), was described from sherds collected from the surface of a large pueblo on the river bank near Los Lunas. It is generally accepted as primarily a southern manifestation, and its distribution bears this out—its frequency diminishes with distance from the lower Puerco. At Pottery Mound, San Clemente made up 41 percent of all Glaze A sherds (Voll, 1961). At Gran Quivira, with 221 sherds, it was 10 percent. In the large lot of sherds from Quarai, 7 percent of the Glaze A were San Clemente. In the Glaze A component of the Herrera Site near Cochití this type was 4 percent (Lange, 1968), and from the floors of the prehistoric house at Paako they were 1 percent. A complete bowl and a jar from Paako are the only illustrated specimens one can refer to (Lambert, 1954). No precise figures are available for Pecos, but the type was obviously even scarcer there—Kidder (1936) records only 23 sherds out of many thousands. Sixty-eight percent of the Mound 7 San Clemente contained ground scoria or basalt, the temper typical of Pottery Mound and the valley pueblos south of Albuquerque, and basalt temper is recorded for the type at Paako and the Herrera Site. It seems certain, therefore, that most of the San Clemente Glaze-polychrome was made in the southern districts.

Unfortunately we did not separate the white-slipped from the yellow-slipped varieties in the inspection of temper, but I believe that further studies will reveal a spatial difference. Design seems to be in the same tradition on both and is the same as on Agua Fria, and both occasionally have a white-line pattern on the outside of bowls (as on Los Padillas), but there are differences in the application of the slip. Most of the yellow variety were given the yellow interior slip first; then the red slip was applied on the outside, covering the rim and often running over onto the upper centimeter or so of the yellow interior. On the white variety, the white slip was applied over the red. If the two were made in different places, the white-slipped variety is probably from the Rio Grande, and the yellow from the Puerco. At Pottery Mound, 84 percent of all San Clemente was the yellow variety.

The situation is even more complex, however, since pottery cannot be nailed to a geographic area by color scheme alone. At least two of the Mound 7 bowl sherds which were classed as San Clemente, because of black-on-white interior and red exterior, differed in having been painted with black glaze-paint over a red slip to which the white was later added as a filler between the black lines. These may be only aberrant Agua Fria and the whim of a single potter. Two more sherds with the cream

yellow slip typical of Cieneguilla were originally classified as Cieneguilla, but upon turning them over, it was discovered that the outsides were slipped red. The temper proved to be crushed latite typical of the Galisteo Valley. These are probably the same as those few from Pecos Kidder described as differing from the local Cieneguilla in no way except for the exterior red.

Voll estimates a beginning date for San Clemente at Pottery Mound at about A.D. 1350, and suggests its evolution from Gila Polychrome through the Zuñi type, Kwakina Polychrome. A good case can be made for this extension of a southern tradition. Gila Polychrome was produced in a wide area from northern Chihuahua to the upper Little Colorado River. It was manufactured locally at Table Rock Pueblo near St. Johns, Arizona, where it was found to be contemporary with Kwakina Polychrome (Martin and Rinaldo, 1960). Kwakina, which was made in the Zuñi Pueblos, differs from Gila in its use of glaze-paint decorations in the Heshotauthla adaptation of Tularosa style. Kwakina was present as trade ware at Pottery Mound and also appeared in Glaze A levels at Las Humanas and Quarai. Although overall design style differs somewhat, the sherds are easy to confuse with the white-slipped variety of San Clemente. However, the cream to pink paste that is common in the Cibola pottery, and the frequently bright green cast to the glaze, are not seen on the eastern types of the same period.

In their study of the Hawikuh pottery, the Woodburys also remark on the relationship of Kwakina to Gila Polychrome, pointing to the parallel development of Showlow Polychrome in the country to the west of the Zuñi villages. Showlow, which is often considered to be a variant of Four-Mile Polychrome, is decorated in matte paint in the Four-Mile style. Although each of the types involved was decorated in an indigenous design style, the color scheme originating near the border in the mid-1200's spread north through Arizona's eastern mountains, swung east through Zuñi to the Rio Grande, then up the river to the vicinity of Santa Fe. By the time it reached the northern terminus, it had died out in the intervening stretches, and at the last existed only at the extremes (table 18).

Table 18.
Pottery types in the Gila Polychrome style.

Type	Range	Dates	Reference
Gila Polychrome	Southeast Arizona	1250 - 1500+	Breternitz, 1966
Showlow Polychrome	White Mts., Ariz.	1300 - 1383	Breternitz, 1966
Kwakina Polychrome	Zuñi area	1325 - 1400	Woodbury & Woodbury, 1966
San Clemente G/p.	Puerco-Rio Grande	1350 - 1450	Voll, 1961
Cieneguilla G/p.(var.)	Galisteo Valley	1400 - 1450	Kidder, 1936; 8th Ceramic Seminar

San Clemente is identical to Agua Fria in shape. Only bowls and straight-necked jars are reported. In the Mound 7 collection, 4 percent of the sherds (9 of 221) were from jars.

Pottery Mound Glaze-polychrome:

Pottery Mound Glaze-polychrome is a refinement of San Clemente in the same color scheme, but with the addition of matte red elements, or filler, on bowl interiors. Design differs from Agua Fria-San Clemente in consisting of an allover pattern of scrolls and blocky rectilinear frets in black glaze filled with matte red paint.

Only 22 sherds of Pottery Mound were collected from the Mound 7 excavations—hardly enough on which to base a description—but it might be appropriate to summarize what little is known of the type. The only formal description to date is in an unpublished thesis (Voll, 1961) that discusses the glaze paint-wares from four extensive tests made by the University of New Mexico at Pottery Mound on the Rio Puerco, about 12 miles west of Los Lunas.

The range is limited, and it was all probably made at or near Pottery Mound where it was 4 percent of Glaze A pottery. At Gran Quivira, it amounted to only 1 percent of the Glaze A sherds, and I noted only a single sherd in the Quarai collection. It has been reported as trade ware at Paako where it was "not common" (Lambert, 1954; p. 77), and at Pueblo Pardo (Toulouse and Stephenson, 1960). At the last two sites, it was spoken of as a variation of San Clemente, and Mera (1933), in his description of San Clemente, says of that type that a few examples have matte red incorporated in the design.

The association of the two types is logical. Both are pink to red-fired clay tempered with basalt, slipped in red and yellow or white, and decorated with black glaze, and the vessel shapes are apparently the same—although few, if any, complete vessels are known. The white slip on Pottery Mound Glaze-polychrome at Pottery Mound played the same minor role it did on San Clemente, and was seen on none of the Mound 7 sherds. But in spite of similarities, there are differences of enough importance to justify the separation.

All of the Pottery Mound bowl sherds from Gran Quivira start to curl inward from a point 2 to 3 cm. below the lip (fig. 120, far right of the Glaze A rims). This is not a feature of Agua Fria, but it did occur on a few rim sherds classified as San Clemente. After noting the consistency of the trait on Pottery Mound, I suspected that those few "San Clemente" sherds were actually Pottery Mound sherds from an area on the pot that had no red paint. The different design tradition has been referred to, although this is seldom apparent on smaller sherds.

Voll (1961) suggests that the type was fully contemporary with San Clemente—A.D. 1350 to sometime between 1450 and 1490. Participants from the University of New Mexico at the Eighth Ceramic Seminar, relating the design style to Sikyatki Polychrome, would revise the beginning date upward to 1400, the estimated beginning of that Hopi type. In my opinion, the revision is unnecessary for the given reason, because the decorative style of Sityatki was borrowed from that of Four-Mile, Showlow, and Homolovi through Jeddito (with beginnings from A.D. 1300 to 1350), and Pottery Mound design more closely resembles that of the late White Mountain Red wares than it does Sikyatki. The relative scarcity of the type at Pottery Mound, however, does suggest that it was a late arrival. The rare occurrences of Glazes B and C at the site, always as trade ware, indicate that these stages were skipped in the south, and that Glaze A was possibly made until the Glaze D period. Pottery Mound Glaze-polychrome probably filled that niche, supporting the 1400 to 1490 range of dates.

1321–1450+

Cieneguilla Glaze-yellow and Glaze-polychrome:

Cieneguilla was the dominant type in the villages of the Galisteo Valley during the latter part of the Glaze A period. In shape and design, it was the same as Agua Fria, differing only in the application of an allover yellowish slip. Named by Mera (1933) for a pueblo about 10 miles southwest of Santa Fe, it was

horoughly discussed and illustrated by Kidder (1936) from the ast Pecos collections. At Pecos, it appeared as a duochrome after Agua Fria was well established. The rare polychrome variety, in which a matte red filler was used, was introduced still later, and ogether, the two varieties outnumbered the Agua Fria by the end f the Glaze A period. Kidder assumed that it was traded to Pecos rom nearby Galisteo Valley pueblos. The temper is redominantly the augite latite typical of the Galisteo and adjacent reas in the Rio Grande Valley (Warren, 1968).

Evidence of precise dating is lacking, but we can sidle ext to approximate dates by inference. The Pecos stratigraphy roved to Kidder that Cieneguilla was introduced after Agua Fria, which he dated at A.D. 1375, but before Glaze B, which he vould bring in at 1425. Mera (1940b), however, saw Agua Fria tarting a little earlier at 1350, and he also admitted Cieneguilla nto the series at a later date but still before the inception of Glaze at 1450. In both instances, the median date is A.D. 1400. On ne basis of this logic, one would move the date back somewhat to djust for the current understanding that Agua Fria was 25 to 50 ears earlier than either Kidder or Mera had realized.

However, evidence from the Herrera Site near Cochití is nat Cieneguilla is quite late in the period, and not introduced until fter San Clemente (Lange, 1968). Supporting evidence from Las lumanas is that it did not appear in the earliest levels at Mound 7, ne Feature 1 floors and the fill of the cisterns where San lemente was present. If the 1350 date for the beginning of San lemente is acceptable, then 1375 to 1400 would be a good guess or Cieneguilla.

Cieneguilla Glaze-yellow from the Galisteo was traded Pecos in large enough quantity to become the principal ecorated pottery of that village, but trade to the south and west as limited. The Herrera Site was as close to the area where it as made as Pecos, but it made up only 14 percent of the Glaze A om the component representative of the late Glaze A period ange, 1968) At both Mound 7 and at Pueblo Pardo, it was only 0 percent of Glaze A pottery, but at Pottery Mound, the greatest istance from the Galisteo, it jumped back to 14 percent. But robably very little of this Pottery Mound Cieneguilla was nported. Voll (1961; p. 43) describes the yellow slip as identical in color and range to that of the yellow variety of San lemente Glaze-polychrome." Some of the Gran Quivira Cieneguilla" sherds also have an orange-brown slip and appear be nothing more than San Clemente without the added external d slip.

The situation at Pottery Mound is interesting. A ommon trade ware there is Pinnawa Glaze-on-white which is the uñi counterpart of Cieneguilla—black glaze-paint on an allover hite slip. Voll (1961) describes a locally made variety of innawa differing from the Zuñi type only in the paste and the use the local basalt temper. By recombining the numbers of sherds om Pottery Mound, one can see that the locally made ieneguilla Glaze-yellow and the local Pinnawa Glaze-white cur in the same relationships to each other as do the yellow and hite varieties of Pottery Mound Polychrome, and close to the tio of white and yellow varieties of the earlier San Clemente. ottery Mound's Pinnawa might just as well be termed a white-ipped variety of locally made, or Los Lunas-made, Cieneguilla.

No complete vessels of Cieneguilla were found at Las umanas, and only 206 sherds. Eleven percent of the sherds were om jars, with the rest from bowls. Twelve percent were olychrome. Although most of Mound 7 Cieneguilla was tempered with the typical Galisteo latite, 15 percent of it contained a crushed basalt like that in San Clemente. Again the majority bore a creamy yellow slip identical to sherds from the Galisteo, but a few, as I have mentioned, had a tan slip like than on San Clemente, and others were of a brick-red clay covered with a thin washy slip. These last two seem to correspond to Pottery Mound's Cieneguilla and "locally made Pinnawa." Unfortunately, we did not check this out by separating the various slips when the temper analysis was made.

Glaze B: 1410– 1500+

The thickened lip to the vessel rim, which distinguishes Glaze B, is a short-lived, transitional form between Glazes A and C largely confined to the northern part of the Rio Grande glaze-paint area. It was typical of the Galisteo Valley from about A.D. 1425 to 1450, and much of the Glaze B that found its way downriver was apparently made there. In the south, although the thick rim is seen on a few sherds, Glaze A was made with no change in form until the introduction of Glaze C.

Largo Glaze-yellow, Glaze-red, and Glaze-polychrome:

Largo Glaze-yellow and Glaze-polychrome were named by Mera (1933) for a prominent ruin in the Galisteo Valley, and that district along with Pecos produced most of the Glaze B pottery in New Mexico. In the first quarter of the 15th century, the decorated pottery in the shape of Cieneguilla was imported into Pecos from the Galisteo, but by the time of the invention of Largo, the Pecos potters had adopted the yellow slip and made Largo with their own sand-tempered paste. There was no appreciable change in vessel shape or in design, but the glaze paint was applied in slightly broader, less even lines.

Not much Largo ever got out of the towns where it was made. It was only 10 percent of all glaze sherds in the later components at the Herrera Site, but this small pueblo may have been abandoned during the pertinent period in the early 1400's (Lange, 1968). Largo with latite temper occurred in Paako near the southern edge of the Galisteo, but it was quite rare. But here, too, there seems to have been a temporary abandonment of the site. I found only three sherds of Largo in the Quarai material. Toulouse and Stevenson recorded only two from the Pardo excavations, eight sherds were reported from Pottery Mound, and Mound 7 produced 109 sherds—fewer than any other glaze type. The last three sites were certainly occupied continuously through the Glaze B period.Most of the Largo at Mound 7 was yellow-slipped and tempered with the Galisteo augite latite (a third of these were polychrome), but 30 percent of the Glaze B rim sherds were red-slipped. Kenneth H. Honea, who found a red-slipped variety in the Cochití district, named it Largo Glaze-red (Lange, 1968; p. 149). Most of the Glaze-red sherds from Las Humanas contain basalt temper, typical of Pottery Mound, but about a quarter of them with biotite felsite were probably made locally. Except for the lips, they are indistinguishable from Agua Fria. The Glaze-red rims differ from the Glaze-yellow in that the swollen lips tend to be smaller and the rims curve inward like the Glaze A rim at the far right in Figure 120.

Medio Glaze-polychrome:

Six Mound 7 bowl sherds with Glaze B rims are in other respects Pottery Mound or San Clemente Polychrome. Although none of them have any matte red paint showing on the inside, the designs on four are more the Pottery Mound style than that of San

The remaining two sherds could be either type. All are low-to-brown-slipped variety. At the Eighth Ceramic Honea reported finding white-slipped San Clemente with ims in the Cochití district. He proposed the name Medio ne, but at this writing, the type has not been described in dly enough, nothing precisely identifiable as Medio lychrome has yet been described from Pottery Mound nough that site (or the Los Lunas area close by) is surely e of the Mound 7 sherds. Voll reports eight sherds of ade Cieneguilla with Glaze B rims, as well as a Pottery olychrome with a B rim but with the slip reversed—ip and decoration on the exterior and a plain red slip on e.

Glaze C: 1410 – 1600+

Glaze C—the first significant and widespread change in s—is recognized by an elaboration of the thickened lip of on which the inside is sloped sharply downward to create , or keel, and the top is often slightly everted (fig. 120). are little changed from previous types except to be nearly beveled to the inside, but necks tend to be somewhat lower ies less rounded and to have distinct shoulders. A new as introduced—a bowl with an inturning rim and sharply lips. This was called a "shouldered bowl" by Kidder, pe, "Kuaua Glaze-polychrome," by Mera. The ants of the Eighth Ceramic Seminar preferred to drop type name and to consider it another form of Glaze C.

Mera dated the beginning of the period at 1450, but (1969) believes Glaze C was 25 years earlier at Tonque . Tonque, situated between the north end of the Sandia ains and the Rio Grande, may have been the originator. If narks a shift of influence in ceramic style from the Zuñi the Rio Grande where beveled rims had been known for ime on black-on-white types.

In the Cíbola area, a contemporary type, Kechipawan rome, is similar in color combinations and design to Glaze the carinated rim appears only occasionally. Voll found C rims on some of the local polychrome at Pottery Mound, e trait never caught hold.

Espinoso Glaze-polychrome:

Espinoso was named by Mera (1933) and, again, the ption and the illustrations in Kidder's *Pottery of Pecos*, ne 2 cannot be improved upon. Espinoso is decorated in red figures outlined in black glaze paint on a white ground—an evolution of Cieneguilla and Largo Glaze-hrome. With Espinoso, the red filler becomes more inent, and decoration of the outside of the bowl (in addition erior design), occasionally seen on Largo, now becomes the The white slip varies from a thick creamy white to a very vash to a fawn color. Most of the sherds from the Las anas collection have a pink, flesh-colored cast. The potters more successful in eliminating the bubbling or cratering of aze paint and achieved a dark brown to black, truly vitreous ce. Although the line work is not so fine as on Agua Fria, derable control was still exercised. There is an increased use presentational design in the form of stylized birds and opomorphic figures, but in the main, design is unchanged t to open up the solid elements to accommodate the red

Mound 7 produced three restorable bowls and 318 sherds, of which about a third were jars. Only two were sherds of shouldered bowls, and the rest were the conventional, hemispherical bowls. Most of this was the white-slipped pottery of the type description containing temper typical of the northern villages, but Warren's analysis shows a dramatic switch from production in the Galisteo Valley to the Pueblo of Tonque. The prior importance of the Los Lunas-to-Pottery Mound area as a source of trade dropped dramatically to only 4 percent of the tested sample, and these few sherds, except for the Glaze C rims, are the Pottery Mound varieties of Cieneguilla, San Clemente, and Pottery Mound Polychromes. For the first time since glazes were introduced to the Eastern Pueblos, there was significant production in the Salinas district. Nearly a third of the Las Humanas sample contained the hornblende syenite temper typical of Abó.

The sherds containing hornblende syenite, which Warren believes to be the same mineral referred to as soda diorite by Shepard (1942) in her analysis of survey sherd collections from the Salinas and Jornada del Muerto, are also superficially distinct from the northern Espinoso. Unlike the white-slipped Espinoso imported from the north, these are red and duochrome. Surface color ranges from pinkish gray through reddish brown to red, with the entire range often occurring on a single vessel as the result of imperfect firing. Only 4 percent are slipped in a red that matches the color of the highly oxidized pieces. A few carry a matte red filler in the design in such low contrast to the surface that it is usually barely perceptible. Rare decoration on bowl exteriors is most likely to be pairs or trios of short parallel bars, as on Agua Fria Glaze-red—the immediately preceding type in this area. No zoomorphic design was seen on red pottery, and the patterns are more open with the paint covering less of the vessel surface when contrasted with the Espinoso from northern villages.

While 1 percent of the Abó sherds with hornblende syenite temper have a thin white slip, and 1 percent of the red sherds have hornblende-gneiss temper typical of the Tiwa villages east of Abó and the Manzano Mountains, if one pulled out the red Glaze C sherds at Gran Quivira and ascribed an origin at Abó to them, he would be right about 98 percent of the time. The combination of duochrome design on a red surface and Abó tempér is so consistent and is so different from other Glaze C found in the Salinas area that a new type name may be warranted. However, it was not Las Humanas pottery, and a formal description can await further study.

Glaze D: 1460 – 1550+

Another node in the gradual transitional development of the Rio Grande Glazes occurred about A.D. 1490, according to Mera's estimate, and lasted for only about 25 years. Glaze D is the earliest type that can be tied in any way, however tenuous, to any dated architecture at Mound 7. Glaze D sherds were found associated with the floor of Kiva N and in the trash that filled it after it burned. No later types were present. We know that Kiva N was in use at least as late as A.D. 1467 and that 3.5 feet of *Glaze E* trash covered it before the porch, Room 87, was built. Room 87, abutted to rooms built after 1551, possibly dates as late as 1600, but it lies on a stratum of trash extending immediately under the floor of the dated rooms. If we postulate that Kiva N was used for about 25 years after the 1467 repair job, and that the Glaze D sherds on the floor represented the earliest appearance of

filling of the kiva with trash, and the 36 years between the 1515 introduction of Glaze E and the 1551-plus construction of the late walls for the accumulation of another 3.5 feet of refuse. These conditions are not inconsistent with Mera's dates.

Glaze D is characterized by bowl rims that are higher and thinner than in Glaze C, and with less exaggeration of the carina on the rims' interior. Jar necks tend to slope inward somewhat, and the lips are thin and usually sharply-everted (fig. 120). This type, also originated in the northern part of the range. Warren believes Tonque Pueblo sparked the innovation, producing the bulk of the ware to export it widely. Only one type has been named for the group.

San Lázaro Glaze-polychrome:

Mera (1933) named San Lázaro Glaze-polychrome for a large pueblo in the Galisteo that was occupied into the historic period. A description and illustrations can be seen in Kidder (1936). Other than the change in rim forms, San Lázaro differs only subtly from the preceding type. Because the potters had acquired more skill in the use of glaze paint, a higher percentage of specimens are truly vitreous, yet with little loss of controlled lines. The use of matte red filler is slightly increased. At Pecos, San Lázaro is largely slipped in tan to red, in contrast to the white slips of the earlier period, and in the Cochití district (Lange, 1968) there was also a shift to tan and light orange slips. The Tonque sherds of San Lázaro from Mound 7 show a slight increase in red and orange slip, but the dove-gray slip persists in dominance.

At Las Humanas by this time, Abó was the primary source of glaze pottery, producing 45 percent of all Glaze D pottery in the Mound 7 sample. Tonque, which had become so prominent 40 years earlier, was still the most important distant supplier, with 25 percent. A few vessels still found their way south from the Galisteo towns, and some from Zia, Cochití (or the Pajarito Plateau), and from the vicinity of Los Lunas. Pottery Mound must be dropped from the latter area because it had certainly become a ghost town by this time—however, one of the three sherds containing the Rio Grande-Rio Puerco scoria temper appears to be Pottery Mound Polychrome with a Glaze D rim. Three percent of the sherds are tempered with the biotite felsite that distinguishes Las Humanas pottery. Obviously, somebody at the pueblo made pottery in this style—one of the sherds is white-slipped clay that appears identical to that of the indigenous Chupadero Black-on-white—but not enough of it was made to consider San Lázaro as important except as trade ware.

Although San Lázaro was probably made for a shorter period than Espinoso, the 506 sherds from Mound 7 are a 59-percent increase over the number of the Glaze C types. This may reflect the increased production at nearby Abó. The glazed ware was now more easily imported than before.

A nearly complete bowl was found in Middle Phase trash, and large jar sherds, probably used as dishes, came from the floor of Kiva N and from a burial.

The San Lázaro Glaze-polychrome from Abó is obviously a continuation of the industry that boomed with the production of Glaze C there. It differs from the earlier pottery in its increased use of matte red paint, and it differs from northern San Lázaro in the reluctance to embellish the outside of bowls and in the relative scarcity of colors other than red. These differences, however, are not enough to make ready field recognition possible.

Glaze E: 1480 – 1630+

During the first quarter of the 16th century—a time deduced by Mera (1940b) from circumstances in the Galisteo Valley—significant changes in Rio Grande Glaze pottery had been established with Glaze E. Throughout this phase, there was less homogeneity in the type from one district to another—and within a single district—than in any period since Glaze A. So great was the variation, that it is difficult to generalize about the entire group. For the most part, however, rims tended to be longer than in the past, to rise perpendicularly, and to form an angle to the curve of the hemispherical base of the bowl. Jar necks sloped in toward the mouth at a slightly increased angle, and lips were longer and more everted. The glaze paint is usually thicker and more vitreous than on Glaze D, and is often runny to the point of blurring the designs. Even on those specimens with thin, non-vitreous paint, the linework is relatively broad and carelessly done.

The shouldered bowl that was introduced with Glaze C became more popular, with its shoulder growing even more pronounced. Mera (1933) considered the Glaze E shouldered bowl a separate type, "Tiguex Glaze-polychrome," but subsequent work has demonstrated that it is merely another vessel form common to the entire area.

The occurrence of Glaze E in Mound 7 was discussed with the description of Tabirá Black-on-white in connection with the fixing in time of the latter type. With 1,021 sherds and eight restorable bowls, it was the third most numerous of the typed glaze pottery. Although absolute dating was not possible, its relative placement is clear. It did not occur in the fill of the Middle Phase Kivas L and N, but it was the predominant glaze type in the trash deposited over them and in the "middle" strata of Test Trench 1. It was also the leading glaze type between floors in Kiva E and in the upper levels of the test pits below the floors of the rooms of the late house. Thus, it was introduced sometime after the trash was deposited in Kivas L and N—or, according to my estimate, after A.D. 1500—and before the 1545 construction of the Late Phase house, and before the introduction of Tabirá. I have given my reasons for believing that Tabirá and the A.D. 1545 start of reconstruction at Mound 7 were nearly contemporary. Therefore, it would seem that the date falls somewhere in the middle of the Glaze E period. Glaze E sherds were only slightly less numerous in the fill and on the floors of the late house than Glaze F.

The complete bowl illustrated in Figure 121 was found by the firepit on the floor of Room 13. Half a bowl, used as a dish, was an offering along with a Tabirá Black-on-white pitcher with Burial 50. A partial but restorable bowl came from between two successively laid floors in Room 15, and about one-quarter of a jar was in the Late Phase fill of Kiva M. Parts of a shouldered bowl were found in the fill of the adjacent Rooms 203 and 205, where it had fallen from the roof of one of them. The other catalogued specimens were from trash not assignable to phase.

Pecos Glaze-polychrome:

The manufacture of sand-tempered Pecos Glaze-polychrome was confined to Pecos Pueblo. This distinctive type was the first Glaze E type to be described, and the only one to be described adequately (Kidder, 1936). Although Kidder referred to it as Glaze V, Mera (1933), from his survey collections, recognized that the type was peculiar to Pecos. It was probably the uniqueness of the rim shape at Pecos during this period (Fig.

third from left) that led Mera to establish the alphabetized nenclature that could be applicable to the entire glaze area. laze F (or VI) at Pecos occurs only with igneous temper, and it was probably all imported. Pecos Glaze-polychrome was apparently produced at Pecos on through the ensuing period.

Six sherds of the type were found in Mound 7. However, because they were recognized in the sorting of sherds as trade ware, they were not included in the samples sent to Warren for analysis. Consequently no Glaze E sherds from Pecos show up on her tables.

Puaray Glaze-white, Glaze-red, and Glaze-polychrome:

Puaray Glaze-polychrome, which Mera (1933) named for a large, historic Tiwa village on the Rio Grande, has considerably more variation within the type than Pecos Glaze-polychrome. In general, bowl rims are more erect than on Pecos and taller than on the preceding Glaze D sherds, but the variation in rim shapes and color combinations would lead one to expect that Puaray might be separated into other types or varieties. This has been attempted, but with little success to date because of an inability to pin any variation to a specific geographic area. Certain trends seem to exist in a given locality when large lots of sherds are seen, but there is too much overlap of styles for further valid typological breakdown.

Mera (1933) named a Trenaquel variety of Puaray for one of the southernmost Piro villages. He described it as having a square-lipped, tall, erect rim with a swelling at the base on the inside, and considered it to be characteristic of the southern part of the glaze-paint area. Shepard (1942), however, in her temper analysis of southern sherds, was unable to find rims precisely fitting the description, nor could I in the Gran Quivira material. A very similar rim *without* the swelling—a shorter version of the second Glaze F rim in Figure 120—is predominant in the Mound 7 Puaray with a Quarai provenience, and is common in that from Abó. But it is not restricted to the south. It is also common on the Mound 7 Puaray with Galisteo and Tonque-San Felipe temper.

Honea (Lange, 1968), in his discussion of the Cochití area pottery, illustrates, but does not describe, a somewhat shorter rim, which stresses the swollen appearance of the interior base, and calls it Escondido Glaze-polychrome. At the Eighth Ceramic Seminar, he tentatively offered it as a new Glaze E type named for a Piro site near Socorro. With their minimal descriptions, both "Trenaquel" and "Escondido" have two things in common—southern origin and thick rim bases—and in fact, the same pottery may have stimulated the naming of both. No sherds definitely attributable to the villages of the Socorro area were found at Mound 7, although rims nearly identical to those illustrated as "Escondido" by Honea were seen on Glaze E sherds found at Las Humanas. These, however, were traded from Quarai, Abó, and the Galisteo Valley.

The sample of Puaray from Las Humanas that was subjected to petrographic analysis revealed that two-thirds of the glazed pottery at the site was, at the time, made in the Salinas area. What trade ware there was from the north was evenly divided between Galisteo, Tonque-San Felipe, and Cochití-Pajarito sources, with a little from Zia. Some red-slipped specimens were seen in sherds from all three major northern centers, but the majority were white to fawn to pale orange. The reverse was true of the Puaray Glaze-polychrome made at Abó, which made up 51 percent of all Glaze E pottery from Mound 7. It was mostly unslipped, and contrary to the case with earlier types from Abó, most of the few slipped specimens were white. In general, the glaze paint is neither as vitreous nor as runny as it is on the Puaray from the northern villages. The matte red filler appears on about half the sherds, although on many of these it is in such low contrast to the red surface that it is hard to distinguish. Most of the Glaze-red sherds, however, have open spaces typical of the red-filled spaces on polychrome sherds, and it is possible they had been painted with a fugitive paint. One of the white-slipped bowl sherds is polychrome only by virtue of having a red unslipped exterior. But these differences are too vague and generalized to make separation into a new type a useful tool.

For the first time, Quarai production of glazed pottery, which started with Glaze C, became significant, with 10 percent of the Puaray at Gran Quivira containing the hornblende-gneiss typical of Quarai. Rather surprisingly the Quarai sherds do not follow the style of Abó, only 12 miles away by trail over the foothills of the Manzanos. Although some unslipped specimens are present, about half bear a heavy cream to white slip and a runny vitreous glaze, and closely resemble the pottery from the Galisteo-Rio Grande area 50 miles to the north.

The incidence of sherds with local Las Humanas temper, never significant, reaches its peak of nearly 5 percent with Puaray Glaze-polychrome. All of these sherds are slipped in yellowish white.

1525

Glaze F: ? – 1700

The changes that signal Glaze F are more easily recognized than those of the intermediate groups. The obtuse angle formed by the juncture of the curved body of a bowl with the base of the rim becomes sharper and more exaggerated, and rims tend to be taller. Jar rims are longer and more sharply everted than previously. The most striking change is an improvement in the glazing quality of the paint, which is thick and glassy. With this increased control of the vitrification of the mineral, however, there was a corresponding loss of control of line. During the firing process, the paint ran, blurring the lines to the extent that the planned design often became unrecognizable. So badly did it run in some instances that the paint from two or three simple lines smeared more than 50 percent of the vessel surface. The long, erratic lines on the jar necks in Figure 124 are not part of the design, but are caused by melted paint streaming to the rim of a pot inverted for firing.

The Rio Grande potters were only a step away from achieving an allover glaze, but, apparently unable to break the centuries-old, design-oriented tradition, they never took that step. A small jar from Quarai illustrates what a narrow gap remained.

a b

121. Puaray Glaze-red bowl.

About one-half of the jar was present, with sherds from the base to the rim of one side. It was tempered with ground tuff typical of the Pajarito Plateau, and the exterior was completely covered with a brown to green glaze. The inside was slipped with a thin pale green glaze. This was certainly an Indian pot, but the interior glaze, very reminiscent of the thin glaze on the inside of a Spanish olive jar, may have been a borrowed European idea.

With the exception of Pecos Pueblo, where the distinctive Pecos Glaze-polychrome of the preceding period continued to be manufactured, Glaze F style was followed in all the glaze-paint area that was still occupied. Mera (1940b) arrived at beginning dates by inference. Glaze F was known to have been in style in the Salinas Province shortly before the Pueblo Rebellion of 1680, but because it seemed to him that it was not yet fully established on some of the refugee sites occupied after the expulsion of the Spaniards from New Mexico, he reasoned that it could not have had a long history. He estimated dates of A.D. 1650 to 1700.

I was quite convinced throughout the excavation of Mound 7 that Mera's beginning date was too late. Glaze F sherds made up 20 percent of all classified glazes, yet the 22 years between 1650 and the recorded abandonment of the pueblo in 1672 was only 6 percent of the total time of the occupation of the site. We had, of course, removed a much larger percentage of late material than of early, but still it seemed too much pottery for such a short time. Evidence from other sites also seems to point to an earlier introduction of the form. Stanley Stubbs identified Glaze F sherds in collections at the Laboratory of Anthropology from Amoxiumqua, Unshagi, and Giusewa, the three northernmost of the Jemez settlements (Smiley, Stubbs, and Bannister, 1953). Yet Paul Reiter (1938) presents documentary evidence to support his belief that Unshagi was deserted as early as 1628, and Giusewa and its associated mission of San José sometime between 1632 and 1639. Amoxiumqua, on a high mesa above San José, must certainly have been given up before Giusewa. It is known that the Jemez reoccupied mesa-top sites after the rebellion, but Reiter identified these as Patoqua and Astialakwa, 6 to 7 miles downstream.

A study of the association of Glaze F with dated architectural events at Mound 7 suggests an inception somewhat earlier than 1650, but not as early as I would have guessed from the abundance of the pottery. As we have already seen, the construction of the late house, except for porches, was essentially complete by A.D. 1600. Glaze F sherds were 32 percent of classified glazes in the fill and on the floors of the rooms, but they were only 3 percent in the subfloor test pits. These few sherds were from rooms where there were intrusive burial pits and were probably themselves intrusive, post-dating the construction.

The *convento* annex at the southwest corner of the house was built about A.D. 1629. Only one of 53 classified glaze sherds from below the floors of the apartment was Glaze F, but this was from under an apparently undisturbed floor. The *convento* was roofed with timbers, dating from A.D. 1551 through 1568, which were probably taken from the abandoned rooms at the north ends of the wings enclosing Kiva C Plaza. Room 116 was one of those roofless rooms—part of a block of rooms with a latest date of 1564. The north wall of the room, and of roofless Room 121 next to it, had fallen outward, probably at the time the timbers were removed, for there was not enough stone in the rubble to raise the walls to height. The stone may have gone into the *convento* along with the wood. We cut a north-south trench to subsoil up to the foot of the north wall of Room 116 to expose two well-defined strata (section C'–C', fig. 1). Stratum A, from top to bottom, consisted of a thin layer of late trash, the rubble and mortar of the missing wall, and a layer of trash deposited during the period that the wall had stood in place. Forty percent of the classified glazes in this stratum were Glaze F. Stratum B consisted of compacted trash on which Room 116 and the other Block 4 rooms were built. Here, Glaze F was 12 percent of typed glaze sherds (5 of 39). I am not suggesting that they dated from the pre-construction period, but rather that they were intrusive from Stratum A, thus proving that at least much of the Glaze F in that upper stratum lay below the rubble and predated the collapse of the wall.

If the assumption that Room 116 was cannibalized to build the *convento* is correct, and if the fall of Room 116's north wall was nearly contemporary with the removal of the wood, then Glaze F was being made by about A.D. 1629. The conclusions based on the evidence of a small handful of sherds and two "ifs" is tenuous. It is supported, however, by other evidence, which also in itself, is not conclusive.

Kivas C, D, E, J, K, and M were all razed, and all but J, which was left open, were filled with trash. In the discussion of architecture, reasons were given for the belief that the destruction was contemporary with the 1658–1659 reestablishment of missionary activity at Las Humanas. Kivas C, K, and M were filled with trash in which Glaze F sherds were 76, 71, and 48 percent, respectively, of all typed glazes. In addition, Kiva C held six restorable vessels on the floor and in the lower fill. Glaze F sherds were found between successively laid floors in Kivas E, K, and M. In Kiva K, a Glaze F sherd was imbedded in the mortar of the masonry. Of course, it is not impossible that the new type could attain such a prominence in the eight or nine years between a 1650 inception and the razing of the kivas, nor is it impossible that in this short time pots were made and broken and new floors laid in at least three kivas, and one of them relined with masonry—but it does not seem likely. I suspect the sherds below the floors and in the masonry pre-dated A.D. 1650, and that Glaze F was made as early as A.D. 1625.

In the Salinas Province, Glaze F expired, along with the population, in the late 1600's. In the valley pueblos, it lasted until shortly after the Spanish reconquest, and on the refugee sites in the Navajo country probably well into the first quarter of the 18th century.

Kotyití Glaze-red and Glaze-polychrome:

Kotyití is the only Glaze F type formally named (Mera, 1933). It is described in Kidder's *Pottery of Pecos* (1936), but not as exhaustively as the other types, since it was a minor import to Pecos from the Galisteo Valley. Marjorie F. Lambert (1954) has also described and illustrated Kotyití Glaze from Paako.

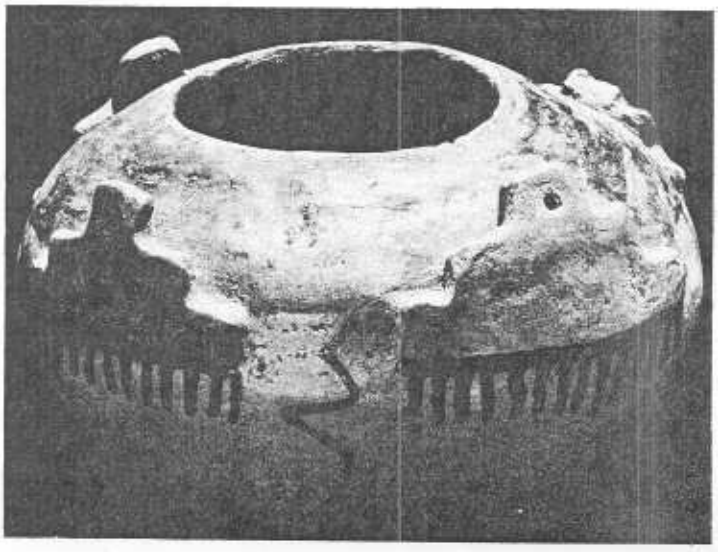
Mound 7 produced 1,108 sherds and 39 whole or restorable pots, or large sherds used as dishes, making Kotyití second only to Agua Fria in numerical importance among the typed glazes. The ever-diminishing dominance of the northern and valley villages in this trade, recorded throughout the discussion of glaze pottery, took another sharp drop. Only 17 percent of the sample of Kotyití Glaze-polychrome and Glaze-red sherds examined by Warren were made outside the Salinas Province. Las Humanas itself remained relatively uninvolved in the production of glazes with only 2 percent of the sherds containing biotite felsite. Fifty-two percent of the glazed pottery during this period was now imported from Quarai, which had only started significant

production in the preceding period. Although Abó was not the source of as much Kotyití found at Las Humanas as Quarai was, it was still the principal trade center, much of the import being in the form of Salinas Red.

While the two bowl shapes and jars continue to make up the bulk of the Kotyití pottery, new shapes were added to the list. Spanish inspired forms, such as soup plates, cups, and small rectangular dishes, are seen in the type, paralleling the similar phenomenon in Tabirá Plain. From the Mound 7 excavations, there were only two examples of these recent forms—part of a rectangular dish and a single sherd from a soup plate—but in pueblos where the pottery was made, these new shapes are more commonly found. Nelson (1916) comments on the unusual shapes in the historic sites of the Galisteo as does Lambert (1954) for Paako.

Two complete squash pots from Mound 7 were of one of the late glazes, but for lack of distinguishing characteristics, could not be typed. One from the floor of Room 151 was associated with the stone bowl shown in Figure 171. It is an unslipped pink to tan paste and decorated with terraced cloud designs and a lightning serpent. The black glaze paint is in a finer line than is usual on Glaze F. The other was found with the collection of finely chipped flints (fig. 165) on the floor of Room 46 under several inches of rotted corn. This interesting bowl (fig. 122) is the familiar seed bowl, or squash pot shape to which has been added four appliqué terraces, fixed with their bases near the widest diameter of the body of the vessel to rise nearly perpendicularly. One of the cloud shapes, and the entire upper half of the pot, is painted with a dark brown glaze. The opposite terrace is painted a matte red. The two remaining clouds are the varied tan to rose color of the paste. Short ticked lines below each could symbolize falling rain, and between each of the clouds is a distinct symbol—a stalk of corn, bolt of lightning with an arrowhead, a polliwog, and the meandering of lightning seen in the illustration.

The first of these two pots, like the similar Tabirá Black-on-white bowls described earlier, are an old form. The second, with its four marginal clouds, is apparently the next step in the modification that resulted in the round or rectangular open vessel with clouds standing above the rim—a common accoutrement of modern pueblo altars, used for holding sacred meal.



122. A late glaze squash pot.

The Kotyití sherds from the Mound 7 excavations show minor differences, according to the proveniences, as indicated by the temper analysis. Those with tuff temper from the Cochití-Pajarito area have bowl rims that are bi-convex in cross section. The Galisteo sherds are slipped white inside and out. The sherds from the two major production centers in the Salinas Province have several traits in common: bowl rims are parallel-sided and only very slightly thicker than the vessel wall; rims run from 25 to 60 mm. high, averaging about 40 mm.; and design is extremely simple, most often consisting of no more than a couple of encircling lines. The most frequent elaboration is a series of open triangles standing on one of the lines (figs. 123c and 124c–d).

There are also some differences in the pottery from Abó and Quarai during this period. The Abó sherds are unslipped, brown to red duochrome in the same tradition that had held at Abó from the first introduction of glaze-paint. Matte red filler, always rare at Abó, is seen on none of the Glaze F from that pueblo. About half of the Quarai pottery is slipped with white which varies from a thick but carelessly applied and streaky yellow to gray off-white, to a very thin, spotty, chalky wash. On many thin-slipped specimens, the white was splashed on so carelessly or has eroded to such an extent that it cannot be detected upon casual inspection. Slip applied to bowl interiors crossed over the lip and down to the base of the rim on the outside. Jars, when slipped, were covered to the base of the shoulder. Matte red is seen on more of the sherds from Quarai, but still on no more than 1 to 2 percent. The slipped vessels are polychrome only by virtue of the contrast of slip and the uncovered red-fired areas. The bowl in Figure 123a carries a faint remnant of a flaky slip to just below the bottom of the rim, both inside and out. The slip on the outside of Figure 123c, although streaked, contrasts well with the unslipped body of the bowl, but on the inside, the slip is so thin and so closely matches the gray-brown color of the paste that it is barely distinguishable. The bowl in Figure 123b is unslipped, a pink to tan color on the outside, with the interior reduced to gray-brown.

There is no superficial difference between unslipped Quarai bowls and those from Abó, but there is some difference in jars. The temper of the restored pots was not examined, but six of the seven restored slipped jars, presumed to be from Quarai, have indented bases (fig. 124a–c), while the three restored unslipped jars have rounded bases, and tend to be somewhat squat with lower necks and wider and more rounded shoulders (fig. 124d–e)—these are believed to be from Abó.

The Kotyití Glaze-red from Abó is surely the pottery which Shepard (1942) has described as the "Jornada Late Variant." She found unslipped bowls with tall, parallel-sided rims and soda diorite temper to be typical of the late sites in the Jornada del Muerto west of Chupadero Mesa. It was noted in the discussion of Glaze C that Warren believes her hornblende syenite and Shepard's soda diorite are the same, and I suspect that the pottery on the Jornada sites came from Abó only 12 to 20 miles north. Shepard did not intend to formally present Jornada Late Variant as a type until more specimens could be studied. The differences in jars demontrated by the Las Humanas collection is a help, but we still need to know more about its range and relationship to the Quarai pottery and to that in the river valley.

Although sorting Kotyití from Quarai Pueblo, and "Jornada" from Abó, by visual determinations alone would leave the majority of sherds in an "unknown Glaze F" category, there were obviously two traditions—closely related but different.