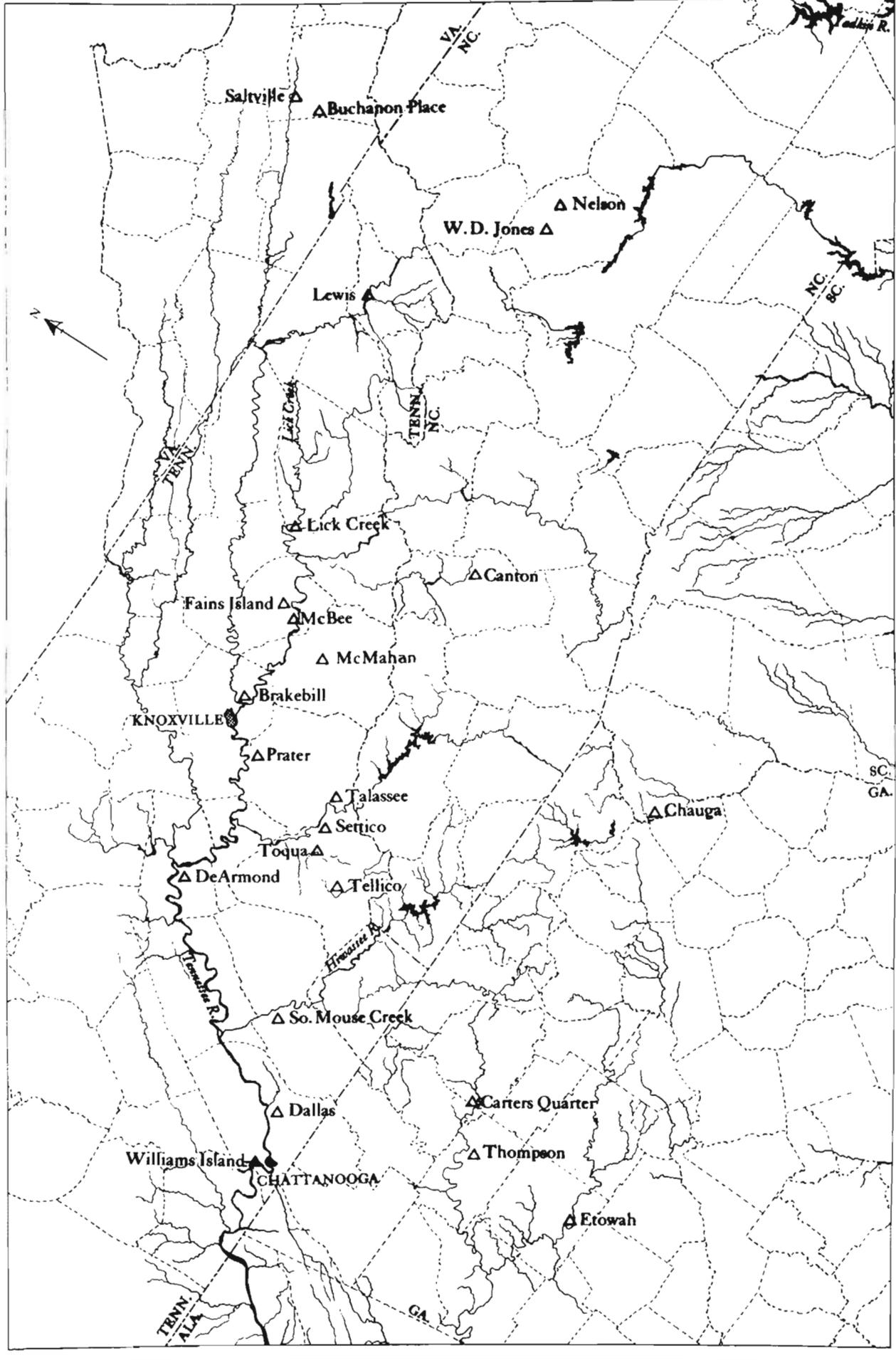


V. The Lick Creek Style

5.1 The last chapter dealt at some length with the theoretical aspects of stylistic analysis. This chapter and the two following are applications of this theory to some art styles in engraved shell.

 Although a later chapter will provide a brief tentative outline of styles in engraved shell of the United States in aboriginal times, it may be well to place the styles analyzed here in some kind of perspective. Much of the art in shell in eastern North America is in form of circular shell pendants known as gorgets upon which are engraved various geometric, fantastic, or naturalistic designs.

 The manufacture of such objects extends back into Hopewellian times (A.D. 300?), but no evidence of continuity of tradition exists. In any case, by early Mississippian times (ca. A.D. 900) there is a gradual revival, re-invention, or re-introduction of this art form. By the 14th century, there were a great variety of local styles in this medium with evident trade of shell gorgets over wide areas. For example, gorgets belonging to the tentative Mound C style of eastern Tennessee and Georgia (see Chapter 8) have been found as far afield as eastern Oklahoma at the Spiro site (e.g. Duffield 1964:Plate XIV, 3-6). At this time period in the Southeast there was a great florescence of artistic achievement on all levels and in many varied media. The archaeological complex in many different local cultures including these arts is known collectively as the "Southern Cult" (Waring and Holder 1945). Other names have been proposed for this widespread phenomenon, but the most common name



Map 1. Lick Creek

is "Southern Cult", and this term will be used here.

By the time of early European contact, the variety and richness of the 14th century had subsided. The reasons for this decline are unclear, although many theories have been put forth (e.g. Baerreis and Bryson 1965). In the river systems of the Tennessee and of the Coosa, however, and in other locations along the Atlantic Coast and in Florida, local traditions of engraved shell gorgets continue as late as the 18th century.

The analysis in this and the next two chapters deals with what is probably a single such local tradition primarily in the eastern Tennessee Valley and the Blue Ridge Mountains farther east. In part of the area in which styles in this tradition occur they appear to represent a break with previous treatments of the shell gorget medium. These styles are here named Lick Creek, Citico, and Saltville after sites in Greene County, Tennessee; Hamilton County, Tennessee; and Smyth County, Virginia, respectively.

5.2 The first style, Lick Creek, is found in its various forms at sites from Marshall County, Alabama, and Chatham County, Georgia, to Smyth County, Virginia (see Map 1). The greatest density of distribution lies from Monroe to Greene Counties in eastern Tennessee. The site at which the largest number of specimens has been found (sixteen rattlesnake gorgets, one cross gorget belonging to the style, and two cross gorgets which could not be attributed to the style) is Lick Creek in Greene County, Tennessee. Lick Creek is a "pure" site in that no specimens of any other style in the rattlesnake theme are present. More than one substyle or style phase may be represented

within the style at this site and elsewhere, however. Around ninety specimens are represented within the total sample.

The major theme present in the style is that of the rattlesnake, but there is one cross theme gorget (Tenn-Gn-LC10) at the Lick Creek site which is also a variant of the style in terms of design elements and structure.

The cultural context of the style is not altogether clear, but the ceramics associated with it are strap-handled, shell-tempered, globular vessels which are cord-roughened. Salt pans and grit-tempered complicated-stamped pottery are also present, but apparently the latter is rare. Lamar Bold Incised or a related ware is also present at most of these sites. "Mask gorgets" were also found at Lick Creek sites, and they occur on the same time level. With the lack of good data on associations, it is difficult to be positive about all aspects of the relationship among these traits. The shell masks have been excluded from discussion here for two reasons, first, they are clearly not in the same style as the rattlesnake gorgets, and, second, they are not gorgets in the same sense of the term.

The manufacture of Lick Creek style gorgets was probably in the hands of a few semi-specialists to judge from the general homogeneity and consistency of the style. At a given site the degree of variation is generally slight enough to suggest that only a few artisans were involved.

5.3 The first part of the description of the style is the technical ordering. By proceeding in this fashion, the gorget will be seen, as it were, as closely to the order of the original manufacture as it

is possible to determine. This procedure will clarify aspects of spacing and form that would not otherwise be readily accessible. In addition, I have also dealt with certain structural and formal features of the style in this section. My feeling is that doing so will provide some basis for comparison of the capability of the method of presentation used below in section 5.5. In addition, since this is the first style described, such treatment will aid in clarifying some of my reasons for deciding on this particular technical ordering.

The beginning of manufacture was the cutting of a blank disc from the volute of a conch. Whether this was done locally or whether blanks were traded is uncertain. Conch shells found at the Lick Creek site and elsewhere do have cut-out sections the size and shape of many Lick Creek gorgets, however. The shape is usually not perfectly round, but slightly longer horizontally than vertically. The orientation of the shell was apparently taken into account in the engraving since in most specimens the growth markings are approximately 45° off the orientation of the design. Only the concave side was decorated.

The size of the gorget was small compared to the Citico gorgets. The largest are usually smaller than five inches in diameter. There are also gorgets which are even smaller than the "average" Lick Creek gorgets; some, as small as an inch in diameter. These very small gorgets are structurally and formally similar to the larger gorgets, but there are significant differences as well. For one thing, as might be expected from their size, these gorgets are simpler in structure. All in all, the small gorgets present a real problem in interpretation of their distribution and associations as will be discussed below.

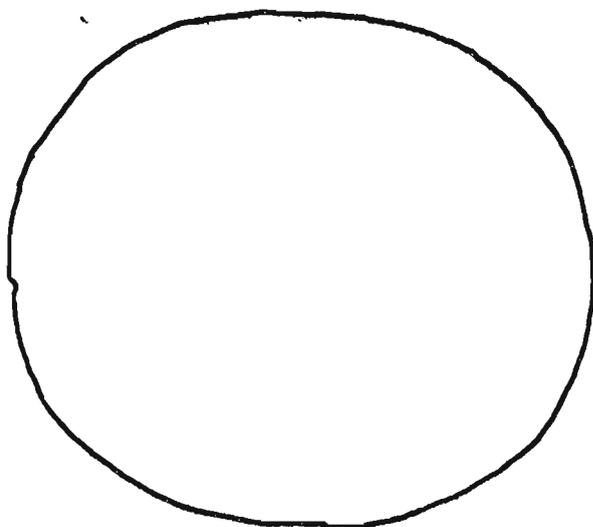


Figure 4.

The first step in the decoration of a Lick Creek style gorget was the delineation of the design field itself by a border of two parallel lines usually spaced about two-sixteenths of an inch apart. This spacing is probably not accidental since it is the same width of the drill which would later be used to cut out portions of this border to form a cross supporting the central design. The distance from the edge of the gorget averages close to three-eighths of an inch, but is dependent upon the size of the gorget.

It seems likely that four arms of a cross were marked off on the border at this point and possibly even a pit in

the center of each arm of this cross. So much of the following treatment of the gorget seems to depend upon the division of the field into four parts by these axes that it is difficult to explain the organization of the gorget by other means (see figure 5).

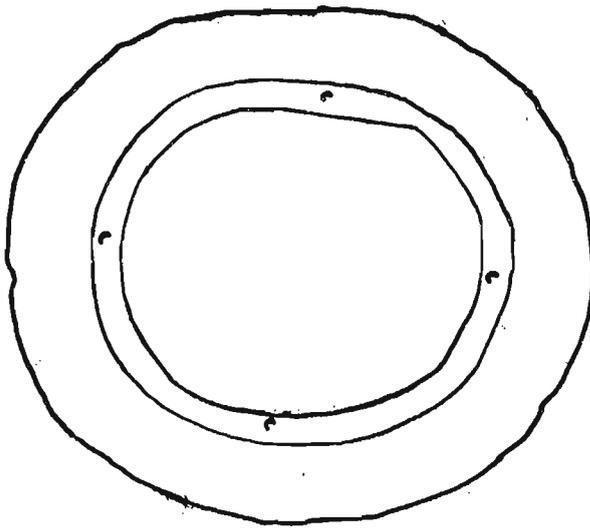


Figure 5.

After the delineation of the main design field, the next step was the layout of the interior design fields. Several different alternatives exist, one of which is that the eye circles and head were placed first. The other possibility is that the inner border of the body area is placed first, followed by the head placement. There are arguments in favor of each alternative, none of which is completely decisive. It is well to note that in all cases of technique, the right and

left sides of the gorget may be reversed occasionally, producing a mirror image or reversed gorget.

The priority of the head placement is supported by crowding and expansion of tail units on two gorgets to fit within areas left by an "improperly" placed head (Ala-Ms-PI 1, Tenn-Bt-P 1).¹ Both of these gorgets, however, are so poorly done that I am at a loss to properly assess their value for any question of technique. More telling evidence is the irregularity of the interior body line which is sometimes apparent. In addition, the position and form of the terminus of the interior body border in many cases appears to result from the position of the head.

The second possibility of the inner border being placed first is supported by the fact that the position of the eye and head on a particular gorget often seems better explained by the use of the inner border as a guide for placement of the head. Furthermore, the surrounding features may assist in explaining the shapes which the head may take. For example, in one specimen from Talassee (Tenn-Bt-T7),

1. Each specimen is catalogued by state, county, site, and a number. Photographs placed at the end of this work show the specimens arranged by these catalogue numbers. A key to the abbreviations may also be found immediately following the bibliography.

the eye circles are flattened on one side in such a way that they conform in shape to the inner body border.

The later placement of the cut-out areas is a factor in the ambiguity of this situation since these cut-outs can obscure earlier features. The first possibility has been used here for the structural description, because it generally simplifies the rules needed to describe the placement of both body and head. In addition, consistency must count for something where the treatment in any given case is so difficult to determine. In some ways this decision is counterintuitive but the other solution would be also - and, I believe, lead to greater complexity as well (see figure 6).

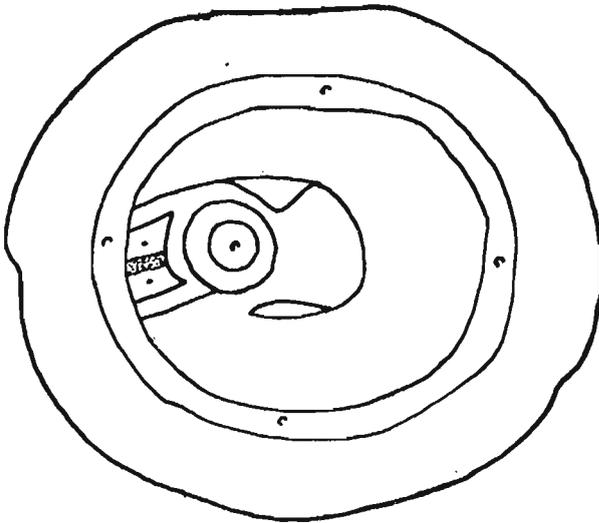


Figure 6.

In fact, the true solution may be that there is a difference in this treatment between some of the various substyles or phases. Since these possible differences of technical order affect only form in this situation, too rigid an adherence to the general rule of using technical ordering of the structural statement would obscure structural unity in this case. This is particularly true here where the actual technical order is so obscure. For this reason such possible technical differences can be considered most elegantly within the context of the form listing rather than in the structural statement per se.

What is clear is that the position of the head and the body are inter-related. That the relationship is difficult to treat as having technical order is clear, and this may indicate that sketching is a possibility. If this is so, it would strengthen the argument for an arbitrary datum in this case.

If the body design field were considered as the first step in the subdivision of the field, its placement could be treated as related to the proper width required, which is usually about the same as that of the plain area of the gorget outside of the main border. Described in this way, the inner body border begins at the outer border either above or on the horizontal axis in some treatments or below the horizontal axis in others. The inner border line is apparently ended at the bottom vertical axis by turning the line back upon itself in a loop, however. Occasionally, the line may be continued beyond this point to the head.

The body border line is not necessarily always continuous. In such cases, the organization of the elements is probably

described more simply if priority of the head is assumed. If the head is considered to precede the placement of the body, the same effect could be accomplished in two ways: 1) by a single line intersecting the outer border at a point determined by the orientation of the head and becoming parallel to the outer border around the gorget and terminating close to the vertical axis on the bottom in most cases, 2) by a similar line paralleling the top of the head rather than the outer border and terminating at the top of the head on a point close to the vertical axis, then followed by another line parallel to the outer border and terminating at the bottom in the same way as above. The first alternative may be seen on Tenn-By^t-T8 and Tenn-Gn-LC1; the second seems likely on Tenn-Mo-T2, Tenn-Se-MM4, and possibly Tenn-Gn-LC7. Because of the cut-out below the area in question, it is usually impossible to determine which alternative was used. The result is virtually the same regardless of method. The head consists of two basic and several possible additional design units. The most important area is the concentric circle unit here called the "eye" (see figure 6). This unit is certainly the first part of the head to be located on the gorget. It is located to the left of the vertical axis so that the outer circle is often tangential to the axis. In addition, the unit is placed so that the drilled pit at the center is just above the horizontal axis or, more rarely, on or below it slightly. The placement of the eye might be simplified if the body is considered to precede it, since then it can be considered simply to be placed close to the body border line at the top left. In slightly more than half the specimens, the distance from the outer eye circle to the outer border is the same as the width of the plain field outside of

the main border which is also roughly equivalent to the body width. At the same time, the outer eye circle is usually more or less tangential to the vertical axis. This equivalence of the width from eye to border and the width of the body occurs in about half of the total sample, but is true for four-fifths of the gorgets on which the head has no complete border.

After the placement of the eye unit, several alternatives of treatment exist. In the simplest of these, a single straight line (a "connector"), often tangential to the outer eye circle, connects the eye to the outer border (see figure 6). This line would intersect the outer border at a point roughly equivalent to the bottom of the right horizontal arm of the cross of the outer border. In this treatment the only border for the top of the head is supplied by the body border line (the tail) and the cut-out area.

Another alternative is the surrounding of the entire head by a single line border. This treatment occurs most often on small or simple gorgets. The single line border also occurs in slightly different form on larger or more complex gorgets, however, (e.g. Tenn-Gn-LC2, Tenn-Mo-S2). The form of this border varies from situations where the outer eye circle and the border are the same line for part of this design, to a completely separate line enclosing the eye circles and extending to the outer border. Generally speaking, the angle of the head from the horizontal axis is greater in these gorgets than in the group described immediately above.

The final possibility of head treatment is the enclosure of the eye unit within a border consisting of two lines with regularly spaced drilled pits between them. The pits are usually spaced about three-sixteenths of an inch apart. This is essentially the same head border that occurs on the Citico style gorgets discussed in the next chapter. A transition between this border and the one discussed immediately above may be found in situations where single line borders are combined with drilled pits (Ga-Mu-C3, Tenn-Bt-T8, Tenn-Gn-LC1, Tenn-Gn-LC7). The double line borders

are generally placed so that the head, which had an essentially horizontal orientation in the "borderless" treatment, has here an essentially vertical orientation. The eye circles remain in approximately the same position, though, and the requirements about the proper relationships of the eye to the outer border still hold true.

The area, the "neck", enclosed by the eye and whatever form of connector or border used could then be decorated. Of course, this operation could be performed anytime in the manufacture of the gorget after the preceding ones and is not necessarily done before, say, the body. The same is true of any treatment which is completely bordered by prior operations. Such treatments are therefore described as soon as they are possible within the description of the decoration of a particular design subfield.

When only a single line connects the eye to the outer border, the treatment of the neck is generally three straight lines parallel to the connector line (see figure 6). The center of these is a widened excised band (excised refers to carving down of an area leaving surrounding areas higher). These lines are bounded toward the center of the gorget by an arc parallel to the outer eye circle and toward the outer edge by the main border line, forming a four-sided figure. The spaces above and below the excised band may have one or two drilled pits placed in them if there is adequate undecorated space around the pits. In one specimen (Tenn-Gn-LC7), an excised rectangular area surrounded by drilled pits is used.

If a single line border has been used, the same three-line unit may also be used, but it is often modified so that the arc

border is rendered as a straight line. A single line dividing the neck longitudinally may be used in other cases, especially where the border and the outer eye circle are the same in part. The effect is still essentially that of a three-line division. In small gorgets, which generally have a single line head border, the neck may have two (Tenn-Bt-P1), or in the one case (NC-Hy-C1) even four, diagonal lines which meet at the eye circle to give a forked-eye pattern. In two basically single borders which enclose repeated drilled pits (Tenn-Bt-T8, Tenn-Gn-LC9) a four-sided area like that used for the three-line unit is completely filled with cross-hatching.

When the double line border is used, the neck is often greatly constricted. In this situation, a median line divides the length of the neck and is often broadened to form an excised triangular area toward the eye. If this triangular filler is large enough, cross-hatching may be used in place of excision. Other treatments include an excised band (Tenn-Gn-LC12, Tenn-Je-F18), an excised rectangular area (Tenn-Bt-T7), and a distorted unit of three lines (Tenn-Kn-B14 and, perhaps, Ga-Mu-C9).

The decoration of the body could be finished anytime after the placement of the head border or connector and the interior body border. In fact, the major elements on the body could be placed before the head if the interior body border were positioned first.

The most "elegant" ordering of technique for the body is the first placement of three lines perpendicular to the exterior border below the top arm of the cross. Like the similar three-line unit of the neck, the center line is often broadened to an excised band. This unit is

hereafter termed the "divider". This unit may be omitted on the small gorgets and the few larger gorgets which share the same simplified structure.

Either the "tail" to the left of the divider or the main body to the right could have been done first. The tail consists of repeated chevrons or, on the small gorgets, repeated straight lines with no divider unit. The chevrons are generally spaced away from the divider by either a small excised triangular area or by a blank space which is later filled in with cross-hatching. The number of tail chevrons varies from three to seven (figure 7).

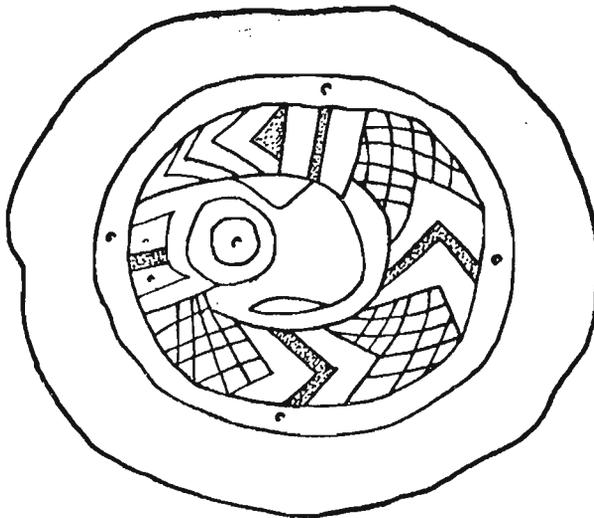


Figure 7.

The body sub-section of the body as a whole may be divided into two parts by a line paralleling the outer and inner borders

(see figure 7). If the body is not divided, two three-chevron units are placed next to the left arm of the cross in the outer border and the bottom arm of the cross. The central chevron of these, like the central lines of the divider and the three-line neck unit, may be excised, but this is not obligatory if the divider has a central excised band. If the body has been divided, considerations of balance may override the relationship to the cross-arms, and three chevron units may be placed on the outer side of the body. In both treatments the blanks between the chevron units and on either side are filled with cross-hatching. The inner division of the body may be left plain or have two or three key patterns (figure 8, e.g. Tenn-Bt-T 8).

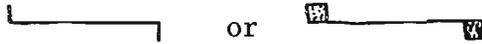


Figure 8.

On very small gorgets the only decoration on the body usually is a division line of the type described in the preceding paragraphs. A double line is used in one specimen (Ala-Ms-PI 1). A key pattern (figure 8) may be used in the same way as described above, but the use of chevrons and cross-hatching on the body is very rare. Several larger gorgets share this general structural pattern (e.g. Tenn-Gn-LC 3,19). As already mentioned, straight lines may be used instead of chevrons on these simpler gorgets, and in this situation the divider unit is omitted, and the body is always undecorated except by the median line.

The next step in the technical structure of the gorget

is the placement of the mouth. As is apparent, each step has affected the following, that is, that slight variations accumulate to affect the placement and structural character of the remaining elements. Thus, it is not surprising that these final stages show the maximum amount of variation.

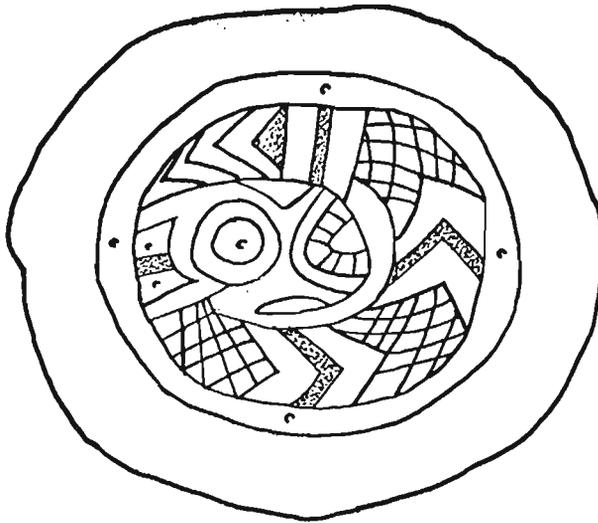


Figure 9.

The mouth consists of three elements, two border lines and a set of short lines perpendicular to the inner border line. Although there are differences dependent upon the context, the shape is trianguloid with a central cutout area. Depending on the space available, the outer border may be "cut" by the outer part of the head. Technical evidence suggests that the inner border was executed first.

Gorgetts which do not have a complete line border for the head differ from those on which such a border is present. The form of the

mouth is usually more nearly triangular with the apex of the mouth, where it is not intersected by the head, rounded in shape (see figure 9). Two specimens (a grave lot from the Settico site, Tenn-Mo-S1,2) do have a sharply angular apex, however. The apex is usually just below the horizontal axis with the mouth centered in the right half of the gorget. The bottom of the mouth is parallel to the horizontal axis. The mouth may have no direct connection with the head, or the outer border of the mouth may be broken by the outer eye circle.

With the double-line bordered head treatment, a different emphasis seems to appear. In these gorgets the shape of the mouth in many cases is altered by the curving of the upper portion to reflect the curve of the forepart of the head. This is very like the mouth of the Citico style described in the next chapter. In addition, the outer border of the mouth is more often placed tangential to the eye-head border in such a way as to "connect" the mouth to the head. Often the entire mouth may be tilted upward (e.g. Tenn-Gn-LC12) though on many specimens the positioning is like that described above. The apex of the mouth is slightly lower as well.

The gorgets having simple structures, usually those small in size, have a distinctive mouth consisting of two straight or gently curving lines which border the vertical lines of the teeth. No other border for the mouth is present. These lines usually intersect the head border (e.g. Tenn-Gn-LC 3, 4).

Other gorgets having a single line head border show a great variety of mouth treatments. The mouth may be similar to the unbordered head gorgets (Tenn(e)-X12), but often has the upward

curvature of the mouth characteristic of the double line head border gorgets. It is interesting that the gorget fragments of variants from Caldwell County, North Carolina, all have a triangular shaped mouth with an angular apex (NC-C1-J3, NC-C1-L5, NC-C1-N2). On these the inner part of the mouth is only excised, not cut-out (excision substitutes for cut-outs on other areas as well).

Above, and occasionally below, the mouth certain spine-like elements may be used. The various varieties of the treatment will be dealt with in the form listing. Other elaborations of the area around the mouth include certain types of filler patterns used as the head-mouth connectors and in the area below the mouth (e.g. Tenn-Bt-T8, NC-C1-L5). These, too, are dealt with below.

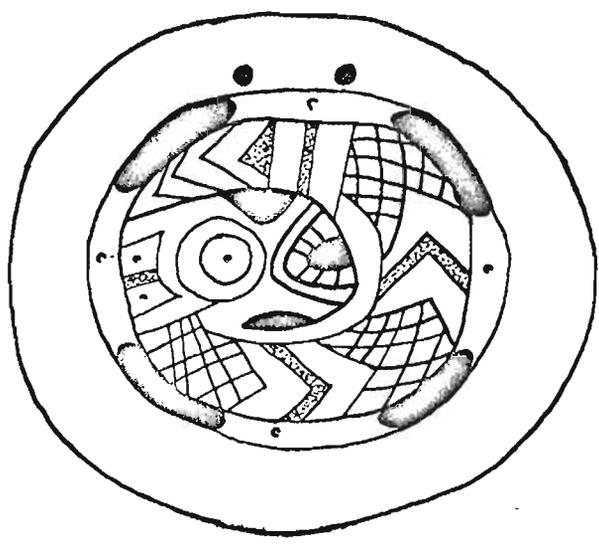


Figure 10.

The final treatment of the gorget was apparently the cutting out of the areas between the arms of the cross, a triangular area above the mouth and below the divider unit of the body, the mouth central area, and the "loop" area below the mouth. As indicated before, this often obliterates evidence bearing on prior stages of manufacture. This completes the gorget (see figure 10).

In the description of the technical structure of the Lick Creek style gorgets, four different varieties of surface structure and form have been treated. The first group of gorgets have the end of the tail above the horizontal axis, eye circles without an exterior border, a mouth nearly triangular in shape, and more common use of excision rather than cross-hatching between the divider and the tail chevrons, to mention only some of the differences.

The second group of gorgets are those having a single line bordering the head. In other aspects the surface structure of these gorgets and the forms employed varies between those employed in the first group and those of the third. This group provides a transition between the other two.

The third group consists of those having, among other things, a double line border with repeated drilled pits, the tail ending below the horizontal axis, and a sharp bend in the top of the mouth border to form an upward curve. Aside from the formal treatment of the body, the organization and form are very similar to some variants of the Citico style.

The gorgets having a very simple treatment of body and mouth usually combined with a single line border for the head are the

fourth variety of surface structure and form. These gorgets are usually, but not invariably, small in size, and the modifications appear to result in part from technical considerations. For example, the execution of the usual body pattern would be difficult on a gorget of one inch in diameter. Social factors may also be an influence here since these small gorgets appear to occur more often with burials of infants than do other forms. Data on associations are so poor, however, that this cannot be definitely established as a pattern. Despite the differences among these groups, all do share an essentially consistent pattern.

5.4 The surface structure of all the Lick Creek style is characterized by a modified spiral organization which is divided into several distinct design fields. As discussed above, this essential autonomy of each field tends to minimize the ^effect of any errors in analysis of the technical structure. ✓

Since each design field is essentially independent in its internal design structure, the treatment of any area in terms of the elements used and their structural relationships is not dependent directly upon the treatment of other areas. Nonetheless, rules do govern the variations of design which are compatible. Such variations and the rules governing them are primarily formal in character and usually do not effect the basic structure. Thus in the case of the mouth, the internal structure is largely the same in all specimens. Certain omissions in this structure may be permitted in situations where size is drastically reduced, for example. But most changes in the mouth are primarily alterations of shape and form. In the paragraphs which

follow, the surface structure of each design field will be discussed in terms of the basic structural features.

The first area is that of the exterior border which is treated as the four arms of a cross. Each of these arms has a drilled pit in the center. If these four pits were connected by lines, the result would be an almost perfect division of the gorget into four parts.

The body of the rattlesnake is supported by the arms of the cross and, in all but the simplified cases, reflects the same four-part organization. The two chevron units of the body and the divider are usually located on the axes formed by the cross arms. In fact, the body has its own four-part division consisting of four units of chevrons or straight lines separated by filler designs such as cross-hatching.

The head also is often placed so that the neck unit of straight lines is next to one of the arms of the cross, and this results in a pattern around the main design field of the type seen in figure 11.

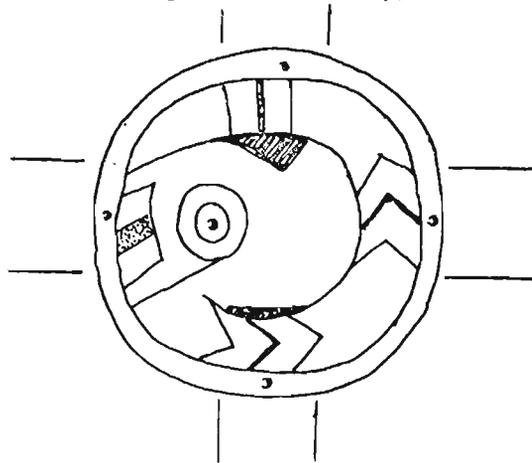


Figure 11.

The head is sometimes treated in other fashions, as has been seen, and when this is so, the tail chevrons are generally lower

down and the next to the cross-arm. Thus, though the element paralleling the four-part division of the outer border is different, the basic pattern is essentially the same (figure 12).

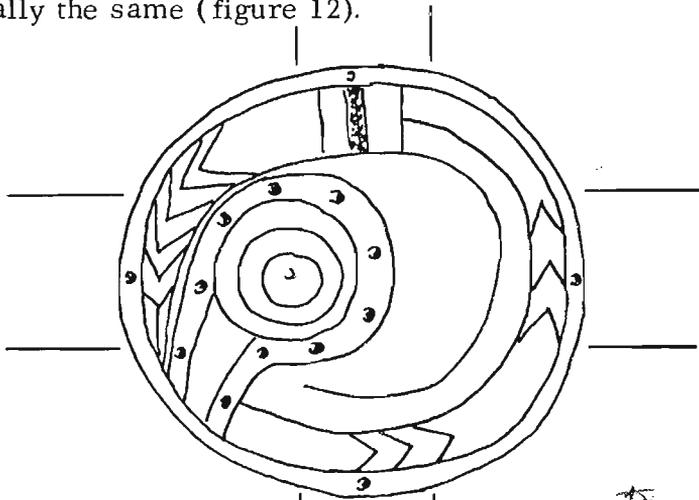


Figure 12.

Ten-Ku-84

There are generally two eye circles together with one

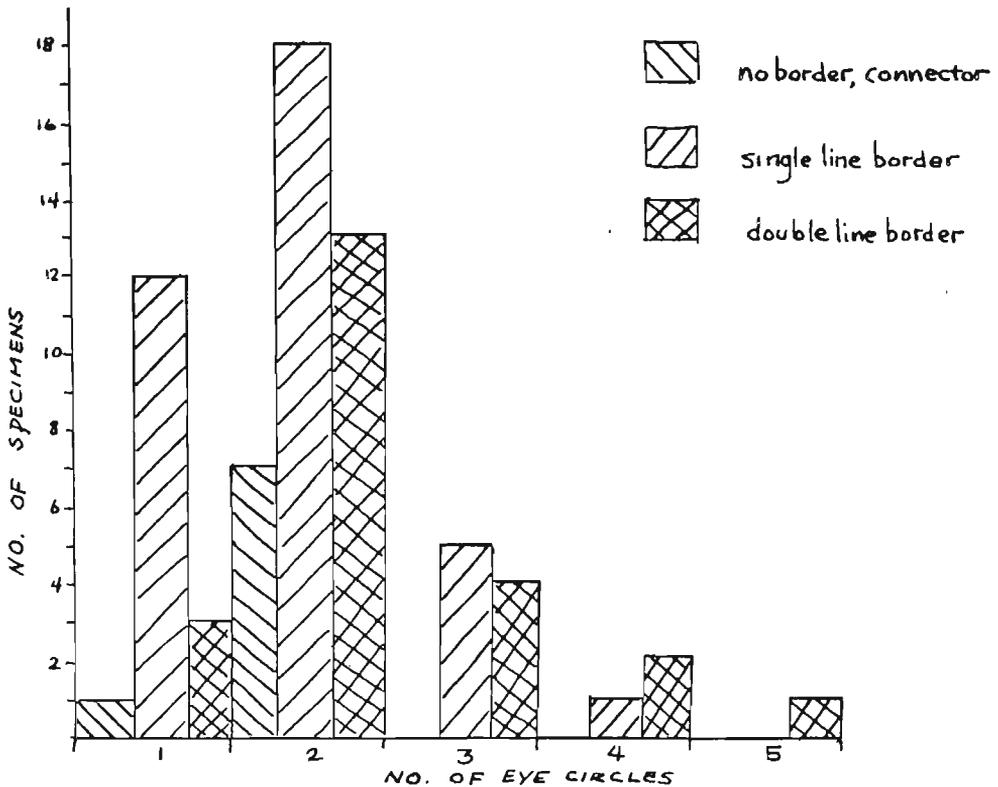


Figure 13.

central drilled pit in the eye. However, when there are more, these always occur with one of the head borders (figure 13). On very small gorgets a single eye circle may be used, a fact which explains the great number of specimens at this number for the single line border based in figure 13.

The treatment of the head shows great formal variety. On specimens of the first "group" discussed above, there is no border as such except on the bottom of the head. The top of the head is set off by the body border and undecorated space. The use of undecorated areas suggests that these are considered as much a part of the design as the engraved lines. If this is so, the use of cut-outs is clearly to set off the entire "head" and mouth as a single unit from the body, which surrounds it.

On gorgets on which the head is bordered, this unity of design is less evident; and there is less emphasis on any positive function of the undecorated space, and these areas are increasingly filled up with decoration. At the same time, cut-outs in the central design field serve less practical purpose and become almost vestigial in some cases (e.g. Tenn-Gn-LC1). The curvature of the mouth is greater, apparently in an effort to cover more of the area with decoration. The excised spine-like embellishments are also used for this purpose.

The surface structure of the head consists in general of a border, the eye circles and drilled pit, and some way of dividing and filling the neck area. The surface structure of the mouth consists of two bordering lines and the short "teeth" lines. The following schematic may help in clarifying the basic surface structure of the gorgets:

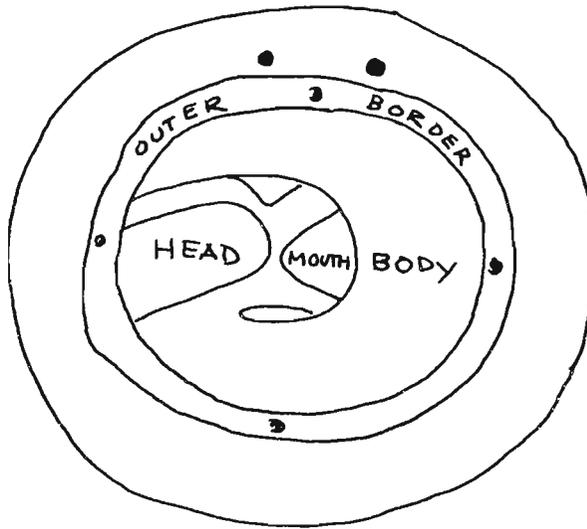


Figure 14.

Although gorgets with radically different structures are found in apparent association, there are good reasons to exclude them from the style definition. For example, of two other gorgets at the Lick Creek site (Tenn-Gn-LC 11, 18), one is a drilled pit design which appears to be much more closely related to a tradition of such gorgets on the Atlantic Coast (see illustrated specimens from the Irene site in Georgia in Caldwell and McCann 1941:plate XIX). The other is an essentially plain gorget on which faint cross markings and other faint lines may be seen. It is possible that it may be preliminary sketching for a Lick Creek gorget, but it is not yet a Lick Creek gorget. There is one specimen, however, (Tenn-Gn-LC 10) which does have a theme other than the rattlesnake and yet is within the style. The thematic content of the gorget is a cross (see figure 15). Though, of course, the technical structure supports the analysis above of the rattlesnake theme. The

basic characteristic of this gorget is the repetition of a three-part straight line unit like those of the neck and divider of the rattlesnake gorgets. These form the arms of the cross. The wedges between these units are filled with cross-hatching; and in the small square in the center, a modified "key" unit occurs.

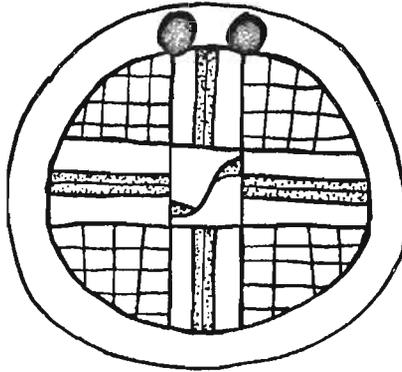


Figure 15.

Thus, very similar features are joined together into a different theme that still reflects the same structure.

Finally, in considering the surface structure it should be noted that engraved lines and excised areas were probably always filled with pigment. The color used was black, though a slight possibility of the use of red exists. The use of such pigments considerably affects the appearance of the gorget.

5.5 The rather cryptic

$$R \rightarrow B \text{ or } H + 1_1 + B + M + \text{out}$$

is the initial step in the structural statement. All that this means is

to rewrite a symbol \underline{R} by substituting the symbols which follow the arrow. The symbols are statements about the nature of the structural relationships. The evidence for these has already been treated in the previous sections. This particular rewrite states that the rattlesnake gorget is composed for a border (Bor), an inner line border (l_1), a head design field (H), a body design field (B), a mouth design field (M), and cut-out areas (out). In the steps that follow, the symbols have been chosen for mnemonic value as discussed in section 4.10 and are explained below to the right of the rewrites. Symbols written out completely in lower case letters are "terminal", and therefore no further rewrites are possible. In these cases, reference may be made directly to the form listing. Moreover, the rules are ordered, that is, they must be applied in the order given or completely rewritten for a new order.

In the following rules an arrow indicates that a particular symbol shall be rewritten using the symbols to the right of the arrow. Parentheses indicate that a particular symbol is optional and need not be used in every case. Braces, $\{ \}$, are used to indicate alternative replacements for a symbol. Brackets, $[]$, are used in two pairs to indicate that if the first element in the first pair of brackets is chosen, then the first element of the second must also be chosen, then the first element of the third must also be chosen, and so on. The concatenation sign, +, sets apart minimal symbols. The concatenation symbol is not needed, however, between symbols where parentheses, brackets, etc. are used. The double lined arrow, \Rightarrow , indicates transformations. It should be emphasized again that the

names listed for the symbols as a mnemonic aid are not final values.

Non-terminal symbols represent structural classes. For terminal symbols, reference should be made to the form-listing which follows -

1. $R \rightarrow \text{Bor} + \text{H} + l_1 + \text{B} + \text{M} + \text{out}$
2. $\text{Bor} \rightarrow l_2 + l_2 + p + p + p + p$
3. $\text{H} \rightarrow \text{E} + \text{L} + \text{N}$
4. $\text{E} \rightarrow \text{cir} + \text{cir} + p$
5. $\text{L} \rightarrow \begin{Bmatrix} \text{con} \\ l_3 \\ b \end{Bmatrix}$
6. $\text{con} + \text{N} \rightarrow \text{con} + l_4 + \text{C}(p + p)(p + p)$
7. $l_3 + \text{N} \rightarrow l_3 \begin{Bmatrix} \text{for} \\ l_4 + \text{C}(p + p)(p + p) \\ l_5 \end{Bmatrix}$
8. $b + \text{N} \rightarrow b \begin{Bmatrix} (l_4)\text{C} \\ l_5(x) \end{Bmatrix}$
9. $\text{B} \rightarrow \text{C} \begin{bmatrix} x + \text{C}\# \\ x + \text{C} + x + \text{C} + x\# \end{bmatrix} \begin{bmatrix} x + \text{C} + x + \text{C} + x\# \\ x + \text{C}\# \end{bmatrix}$
10. $x + \text{C} \rightarrow x + c + c + c$
11. $\text{C} \rightarrow d + d + d$
12. $\text{M} \rightarrow m + t(\text{emb})$
- R=rattlesnake
 Bor=main border
 H=head
 l_1 =inner border line
 B=body
 M=mouth
 out=cut-out
 l_2 =border line
 p=drilled pit
 E=eye
 L=head "border"
 N=neck
 cir=circle
 con=connector
 l_3 =single line border
 b=double line border
 l_4 =arc border
 C=three-part unit
 for="forked" eye lines
 l_5 =single line divider
 x=filler
 #=visual terminus
 c=chevron
 d=vertical line
 m=mouth border
 t=teeth
 emb=embellishment

Transformational Rules

T1. optional: $E + l_3 \Rightarrow (\text{cir}) \text{ cir} + \text{cir} + \text{cir} + p + l_3$

T2. optional: $E + b \Rightarrow (\text{cir})(\text{cir}) \text{ cir} + \text{cir} + \text{cir} + p + b$

Rules T1 and 2 reflect the fact that in the sample more eye circles are allowed on gorgets which have bordered heads. In fact, with the exception of the context of rule T3, there are really no significant differences between the number of eye circles possible in the contexts $E + l_2$ and $E + b$, but the rules must reflect the character of the existing data. Reference to an informant, were it possible, could quickly settle the issue whether two rules or a more general single rule are required.

T3. optional on small gorgets: $E \Rightarrow \text{cir} + p$

Since nearly all of the small gorgets have a single line border, rule T3 applies primarily to the context $E + l_3$. Rule T₃ is the first of a series of rules which are necessary to deal with the simplification of structure resulting from small size. Like this rule, many of these following rules concern deletion of structural features.

T4. obligatory: $x + C\# \Rightarrow x + c + c + c(c)(c)(c)(c)$

This rule provides for the derivation from C in the "tail" position of a series of individual elements rather a three-part feature. The exact number of chevrons is dependent upon the space available to the left of the divider since chevrons and line units are spaced uniformly - about the same distance as the width of the exterior border.

T5. optional for small gorgets:

$$d + d + d + x + c + c + c(c)(c)(c)(c)\# \rightarrow d + d + d(d)(d)(d)(d)\#$$

This rule alters the tail from the divider, cross-hatch, and chevron pattern to a series of repeated straight lines.

T6. optional in each case: $d + d + d \rightarrow d$

This rule converts a three line unit into a single line.

It may be applied to the neck area where the symbol 15 in the rewrite rules is actually partly a result of this transformation. On small gorgets where rule T5 has not been applied, this rule may be used.

T7. obligatory for neck, $+ C + \rightarrow + C' +$

optional for divider,

and optional for $x + C + x$:

This transformation has the effect of substituting a broad incised unit in the center of each three-part unit. This rule could also be stated as

$$\begin{bmatrix} + c + c + c + \\ + d + d + d + \end{bmatrix} \Rightarrow \begin{bmatrix} + c + c' + c + \\ + d + d' + d + \end{bmatrix}$$

T8. optional

$$x + C = x + C + x\# \Rightarrow \frac{x + C + x + C + x(C + x)}{K} \quad K \rightarrow \begin{Bmatrix} \emptyset \\ k \end{Bmatrix}$$

This rule has the effect of dividing the body to the right of the divider and adding an optional additional chevron unit and cross-hatching. A key pattern may be used on the inner band.

T9. optional for small gorgets

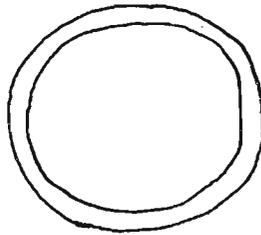
$$1_2 + \dots + x + C + x + C + x\# \Rightarrow \frac{\emptyset}{K} \quad K \rightarrow \left\{ \begin{array}{c} \emptyset \\ k \end{array} \right\}$$

This is essentially the same transformational rule as T8, but it provides for deletion of all body decoration on the outer side of the median divider. Usually occurs with T6.

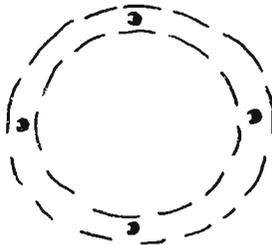
Form Listing

In the following description of the substitutions of actual forms for the terminal strings of the above generative statement, the first symbol listed is that of the general symbol involved. The second symbols after the colon indicate the contexts which are involved. The discussion after the dash indicates the nature of the total form and is followed by a sketch of the shapes and forms used. Where the important feature of a particular symbol lies in its repetition in certain ways, the listing of the context shows this and the form shown is for the total formal configuration. Symbols are listed in their order in a complete terminal string. For example, the first listing could be read as " l_2 in the context $l_2 + l_2$ is a double line border"

1. l_2 : $l_2 + l_2$ - a double line border for the gorget as a whole.



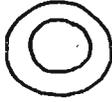
2. p : $l_2 + l_2 + p + p + p + p$ - four drilled pits within the double line main border which are placed on the axes.



3. p : $cir + cir + p$ - a pit (centered in concentric circles)



4. cir: cir + cir - concentric circles



5. con: all contexts - a line connecting the outer eye circle to the outer border. This connector may be tangential to the circle or intersect it.



6. 13: in small gorgets - a line surrounding the eye circles and extending to the outer border. This line may be entirely separate or may intersect the outer eye circle.



7. 13: elsewhere - the same as above except for the form when separate. This may rarely enclose a repeating series of drilled pits.



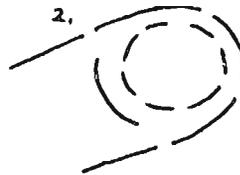
8. b: in all contexts - a double line border of the head containing a series of regularly drilled pits. This border may be curved and constricted at the base. The inner line may merge with the outer eye circle at the top.



9. 14: con + 1₄ - an arc paralleling the outer eye circle within the neck.



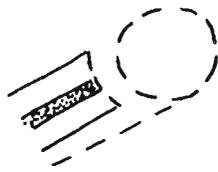
10. 14: 1₃ + 1₄ - a straight line at right angle to the neck border or like 1₄ in the context con + 1₄ in listing 9.



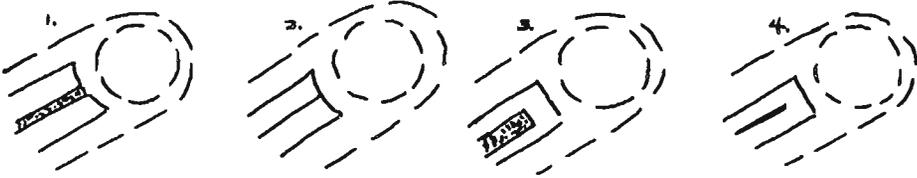
11. 14: b + 1₄ - as in context con + 1₄ (listing 9) above except that the element may be omitted in consideration of the modification discussed under listing 14 below.



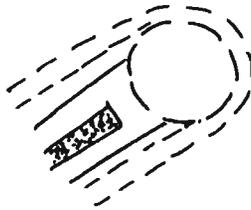
12. d: con + 1₄ + d + d + d, in neck - three straight lines parallel to the connector or to the bottom line of the single line border. (Since transformation T7 is obligatory here, the center line is always an excised band.)



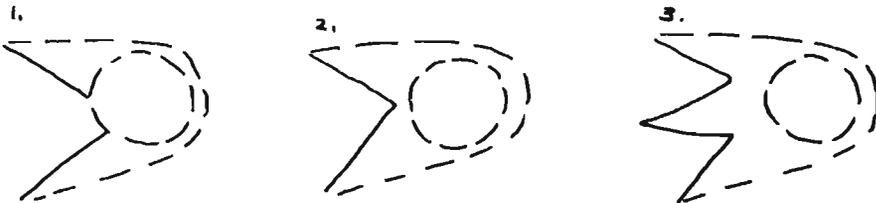
13. d: $l_3 + l_4 + d + d + d$, in neck - the same as con + $l_4 + C$ except that in some cases transformation T7 is omitted; Where l_4 is straight (form variant 1 of listing 10), the inner line may cease before intersecting l_4 .



14. d: $b(l_4) d + d + d$, in neck - as above, except that l_4 is usually omitted, and the outer lines intersect the outer eye circle while the center excised band stops as in variant 3 of listing 13 immediately above.



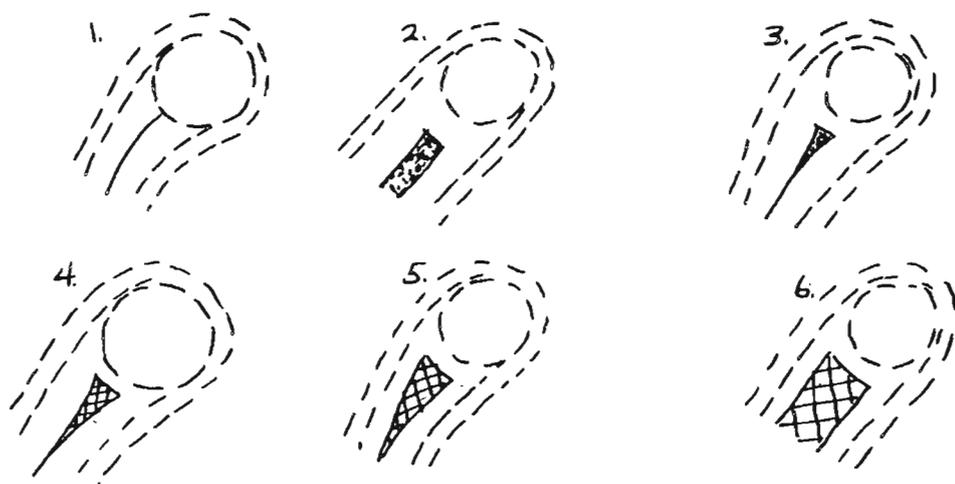
15. for: only with l_3 on small or simplified gorgets (variant 1 of listing 6) - two or, in one case, four lines which are placed to give a "forked eye" appearance. These may intersect the outer part of the eye.



16. l_5 : l_3 (variant 2, listing 6) + l_5 - a single line used as the only pattern in the neck.



17. l_5 : $b + l_5$ -, depending upon the space available, a line, band, or cross-hatched area of various forms.



This variety results from the conversion of the C pattern above into various kinds of neck fillers. Variant 5-6 is actually equivalent to $l_4 + d + d + x$.

18. d : $d + d + d + x$ - three lines perpendicular to the inner body border and the outer body border. Transformation T7 is usually applied (variant 2 below).



19. x: con + . . . + x + ccc . . . # - an excised area bounded by chevron on left and the divider unit on the right. Excision may be extensive or consist of only a small marker.



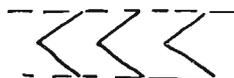
20. x: $l_3 + \dots + x + ccc \dots \#$ - sometimes like con + . . . x + ccc# in listing 19 in being excised, or may be cross-hatched with the same boundaries, but is usually slightly longer in length in the latter case.



21. x: in all other contexts - cross-hatching bounded by prior decorations. Thus shape depends on location.



22. c: in all contexts, c + c + c or c + c + c + - a chevron spaced apart from other chevrons in the same unit and repeated in three-part units on body or in greater numbers in the tail. The point of the chevron is always toward the tail except in very rare exceptions.



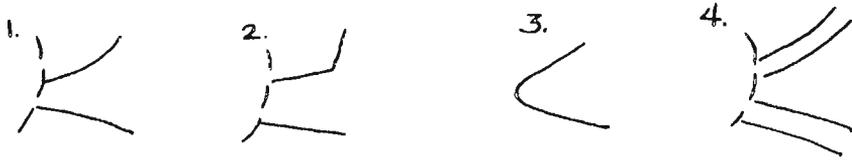
23. k: in all contexts - a line which begins at a right angle to its border line, turns at a right angle to parallel the border, and turns at a right angle again to intersect the other border at 90 degrees.



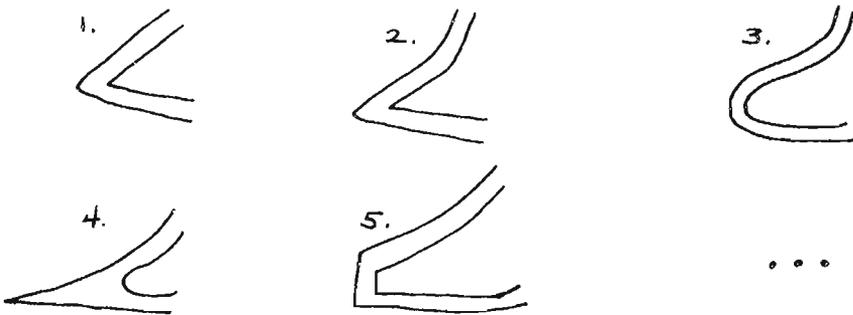
24. m: con + . . . + m - a double line border for the mouth. The mouth only rarely touches the outer eye circle.



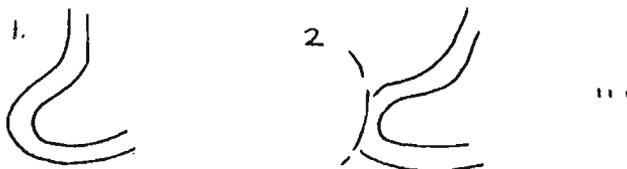
25. m: $l_3 + \dots + m$, in small gorgets - a single line border for the mouth which usually intersects the outer eye circle or border. Rarely, a second border may be placed outside of this.



26. m: $l_3 + \dots + m$ - a two-line mouth border of many variants in form. In some cases, the outer line is broken by the head. The top part of the border is usually curved upward.



27. m: b + . . . + m - very like the situation above for the context $l_3 + \dots + m$ (listing 26). Generally, the top of the mouth is more curved, and the outer line is more often broken by the outer border of the head.



28. t: in all contexts - a set of repeated lines perpendicular to m and intersecting the inner line of m.



29. emb: con + . . . + m + t + emb - an angular spine or thorn-like excised element which may be used once or twice on the top of the mouth. In a few cases, embellishment may be used in a key pattern, k, below the mouth (see k above).



30. emb: $l_3 + \dots + m + t + emb$, but rarely on small gorgets - a unit which may be like that described above, may have a sharp bend toward the point (2), or may be more curved (3). In this context it may be used above or below the mouth and occasionally at the apex of the mouth. Up to two such units may be used in either top or bottom position.



31. emb: b + . . . + m + t + emb - like variant three in context $l_3 + \dots + emb$ (listing 30) above, except that it is usually longer and more such units are used. This "spine" may occur both above and below the mouth. Below the mouth a unit like variant 2 in listing 30 may sometimes be used (variant 2, here).



32. emb: b + . . . + m + t + emb, at apex of mouth - an excised area connecting the mouth to the head.



33. out: con + . . . + out - is a series of cut-out areas as below



34. out: l₃ + . . . + out - essentially as in con + . . . + out (listing 33), particularly on small gorgets. There is usually a somewhat greater curvature on mouth area, however. This feature may also be treated as in the illustration below.



35. out: $b + \dots + out$ - similar to listings 33 and 34 above except that the cut-outs reflect greater curvature of mouth. The cut-outs are not here so basic to the design form as they were above.



5.6 A few speculations about the relationships of some of the groupings of the Lick Creek style are in order. It must be emphasized that the evidence for these is stylistic and not stratigraphic. Therefore, the decision to call a group a possible "phase" or another a "substyle" is tentative in the fullest sense of the word.

One possible interpretation is that the three major groups of gorgets described above in section 5.3 are temporally significant. In such a situation the alternate choices of rule 5 and the following rules in section 5.5 would be representative of a change in the Lick Creek style toward the structure of the Citico style. It is true that the structures which occur on these gorgets having a double line border for the head provide a relatively smooth transition into the structural features of some parts of the Citico style. If this apparent development is real, then a tentative "phase 1" would be represented by the rules

5. $L \rightarrow con$

6. $N \rightarrow l_4 + C(p + p)(p + p)$

and the omission of the transformational rules T1, T2, T3, T5, T6, T8, and T9.

The small gorgets, despite their "simplicity", are grouped for structural reasons together with a tentative "phase 2" characterized by

$$5. \quad L \rightarrow l_3$$

$$7. \quad N \rightarrow \left\{ \begin{array}{l} \text{for} \\ (l_4) \\ l_5 \end{array} \right\} C(p + p)(p + p)$$

and the application of those transformations applying to "small" gorgets and the omission of transformation rule T2.

A hypothetical "phase 3" could consist of rule

5. $L \rightarrow b$, the rules following, and the application of rule T2 rather than T1 with most of the other transformational rules still holding.

Together with the possibility of temporal differences in the style, there are also some possible social variations such as those referred to in Caldwell County, North Carolina, where excision is substituted for the cut-outs. There are many other hints of localized differences of this kind, but the small number of specimens prevents any general statement of these at this time.

5.7 The apparent break with earlier traditions of shell gorget manufacture in the area has already been noted. Archaeologically, the gorgets in the rattlesnake theme have been identified as a part of "Dallas Culture". The discontinuity of styles, however, suggests that finer divisions of this long period might be possible. In any case, it is clear that the rattlesnake theme is later than other treatments of shell gorgets in the eastern Tennessee Valley (Kneberg 1959:19) although the exact

relationship to the "scalloped triskele" gorgets is unclear.

There is less evidence for temporal differences within the three styles, a matter which will be returned to later. The structural continuities to the next style analyzed, Citico, have already been mentioned. There are major formal differences between the styles, but a few gorgets show some formal characteristics of both (Tenn-Bt-P 1, Tenn-Je-F 15, and Tenn-Ra-DA 1).

Three variations of the Lick Creek style have been noted, and I have speculated that these may be temporal phases. The exact character of these groups, however, will become clear only when clearer data on associations and stratigraphy become generally available. Although I feel that it is less likely, it is entirely possible that these tentative phases are nothing but reflections of social and cultural factors. The problem of the social inferences possible will be dealt with at the end of Chapter 7 after all three styles have been discussed.